UTAH TRAFFIC CONTROLS FOR
SCHOOL ZONES

2005 EDITION

(revised December 2008)

Part 7 Supplement to
The Manual on Uniform Traffic Control Devices
(2003 Edition)

Utah Department of Transportation

Division of Traffic and Safety

UDOT CONNECTING COMMUNITIES

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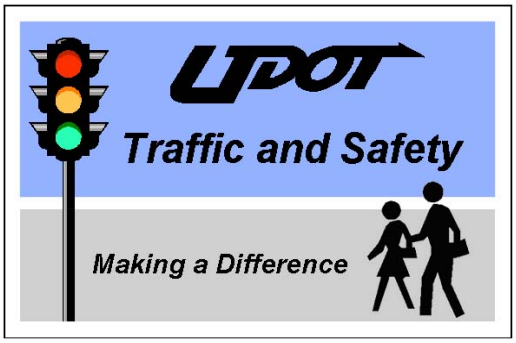

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UTAH TRAFFIC CONTROLS FOR SCHOOL ZONES

PART 7 SUPPLEMENT TO

THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (2003 EDITION)

PURPOSE

SUPPORT:

To assure uniform design and application of all types of traffic control devices, Utah Code Annotated (UCA) Section 41-6a-301, requires the Utah Department of Transportation to create a rule establishing a manual and specifications for a uniform system of traffic control devices. The manual adopted (UCA R920-1-1) is the Manual on Uniform Traffic Control Devices (MUTCD), a Federal Highway Administration (FHWA) publication. In addition, UCA Section 41-6a-301(2), requires the Utah Department of Transportation to create a rule establishing a manual and specifications for a uniform system of traffic-control devices, school crossing guards, and child access routing plans for school crossing zones. This Part 7 Supplement to the Manual on Uniform Traffic Control Devices satisfies that requirement.

The intent of this supplement to the MUTCD is to standardize, as much as possible, applications of traffic control devices and crossing guards in School Zones on all public highways in the State of Utah. As specified in UCA 41-6a-302, the requirements of this Supplement apply to all jurisdictions in Utah.

This Supplement is divided into sections that correspond to the applicable sections in the MUTCD. For the convenience of the user, those sections of Part 7 of the MUTCD not changed for this Supplement are also included.

The FHWA final rule established December 22, 2003 as the effective date for the 2003 Edition of the MUTCD, which this Manual supplements.

STANDARD:

Where differences occur between the MUTCD and this Supplement, in language or intent, this Supplement shall take precedence.

For installation of new devices or replacement of devices, compliance shall be effective immediately. For existing devices in good condition, the following list of special compliance dates shall apply.

A. Section 7A.12. School Advance Warning (S1-1) sign - removal of School Advance Warning signs from crosswalks at places of higher learning - August 1, 2008;

B. Section 7B.03. Cones - retroreflection included - August 1, 2010;

C. Section 7B.07. Fluorescent yellow-green background - upgrading signs listed in 7B.07 to have a fluorescent yellow-green background - August 1, 2008;

D. Section 7B.07. Non-School Zone signs with fluorescent yellow-green background - replacement of all existing non-School Zone fluorescent yellow-green signs with standard colors - August 1, 2008;

E. Section 7B.08. School Advance Warning Assembly (S1-1 with AHEAD Plaque)—use of AHEAD plaque (W16-9p) - August 1, 2008;

F. **Section 7B.08. School Advance Warning Assembly (S1-1 with AHEAD Plaque)—use at roundabouts - August 1, 2010;**

G. **Section 7B.09. School Crosswalk Warning Assembly (S1-1 with Diagonal Arrow Plaque) - elimination of crosswalk lines from Crossing signs (S2-1, 1988 MUTCD); elimination of ALL YEAR Plaque (SS1-1p), and use of the Diagonal Arrow (W16-7) Plaque - August 1, 2008;**

H. **Section 7B.11. School Speed Limit assembly - shall be in substantial conformance with the specifications of UDOT Standard Drawing SN 2 (post-mounted) or SN 3 (overhead) - August 1, 2008.**

I. **Section 7B.12. Reduced Speed School Zone Ahead sign (S4-5) - replacement of existing Reduced Speed Ahead assembly - August 1, 2010;**

J. **Section 7B.16. Narrow School Route assembly (S1-1 and W7-3a) - Use of supplementary ALL YEAR (SS1-1p) plaque for applicable schools - August 1, 2010; and,**

K. **Section 7E.04. High-visibility retroreflective safety apparel - labeled as meeting ANSI 107-1999 - December 23, 2006.**

CHAPTER 7A. GENERAL

Section 7A.01 Need for Standards

STANDARD:

A school shall be considered an elementary school if it includes any grade from kindergarten to sixth grade.

In accordance with UCA 53A-1a-108(1), each public school, in consultation with its local school board, shall establish a School Community Council at the school building level. Details concerning the makeup of the School Community Council are outlined in UCA 53A-1a-108.

UCA Section 53A-3-402(17), requires that each school board establish a School Traffic Safety Committee at the district level, composed of members from schools, PTAs, the city or county, state or local law enforcement, and UDOT or local traffic engineering.

Among other responsibilities outlined in UCA 53A-1a-108(2)(a), School Community Councils shall establish child access routing plans for each elementary, middle, and junior high school within the district. The School Community Council shall submit those child access routing plans to the School Traffic Safety Committee. The child access routing plan shall be prepared in accordance with UCA 53A-3-402. The School Community Council shall meet annually as a minimum.

Problems or suggestions from parents, teachers, or school administrators involving school traffic safety shall be submitted to the School Traffic Safety Committee for review and recommendations. The School Traffic Safety Committee shall meet annually as a minimum.

OPTION:

Each School Traffic Safety Committee may establish subcommittees as needed for each district or school.

SUPPORT:

The School Traffic Safety Committee handles specific problems and issues relating to school trip safety for each school in the district. The Committee reviews the child access routing plans prepared by the School Community Councils. When satisfied with those plans, the School Traffic Safety Committee submits each child access routing plan to the appropriate UDOT Regional office, and to all affected local jurisdictions. Please see Appendix F for UDOT Region contact information (including a map of the Regions) to determine which Region should receive the child access routing plan. The Committee also recommends school traffic safety improvements, boundary changes for safety, and school safety program criteria.

Section 7A.02 School Routes and Established School Crossings

STANDARD:

The School Community Council for each elementary school shall prepare, and update annually, a child access routing plan. The plan shall show, in map form with text description as a minimum, the walking routes on the street system within the school boundaries, the school location, existing traffic controls (STOP and YIELD signs, signals), rail line crossings, and established school zones. The map shall be readable in black and white print. The plan also shall address the loading and unloading areas for students riding the school bus, public transit, or private vehicles. An explanation of the plan, instruction to parents to walk the route with their children, and an outline of areas of concern shall also be included.

Each plan shall be reviewed annually by the district's School Traffic Safety Committee. After review by the Committee, the plan shall be sent to the appropriate UDOT Regional office and local jurisdiction(s) before July 1 of each year. The child access routing plan shall also be sent, at the beginning of each school year, to parents whose children attend an elementary school. Parents of students who begin attending an elementary school during a school year shall also be provided a copy of the child access routing plan. Principals of elementary schools shall be responsible for distributing the child access routing plans to parents.

Each elementary school shall, as a minimum, present a traffic safety program to its students annually. The program shall include instruction on safe pedestrian and bicycle behavior and the limitations of drivers and traffic control devices.

The School Community Council for each middle and junior high school shall prepare and update annually a child access routing plan. The plan shall show, as a minimum, the school crossings on major highways. The plan shall be submitted to the appropriate UDOT Regional office and local jurisdiction(s) before July 1 of each year.

If a school provides hazardous busing for students within a geographical area, an alternative walking route shall not be shown on the child access routing plan in that area.

SUPPORT:

In formulating the child access routing plan, consideration is needed for disabled and special needs students that attend the school. This includes both the walking route to and from school as well as the loading/unloading areas around the school.

An example of a child access routing plan map is shown in Figure 7A-1.

OPTION:

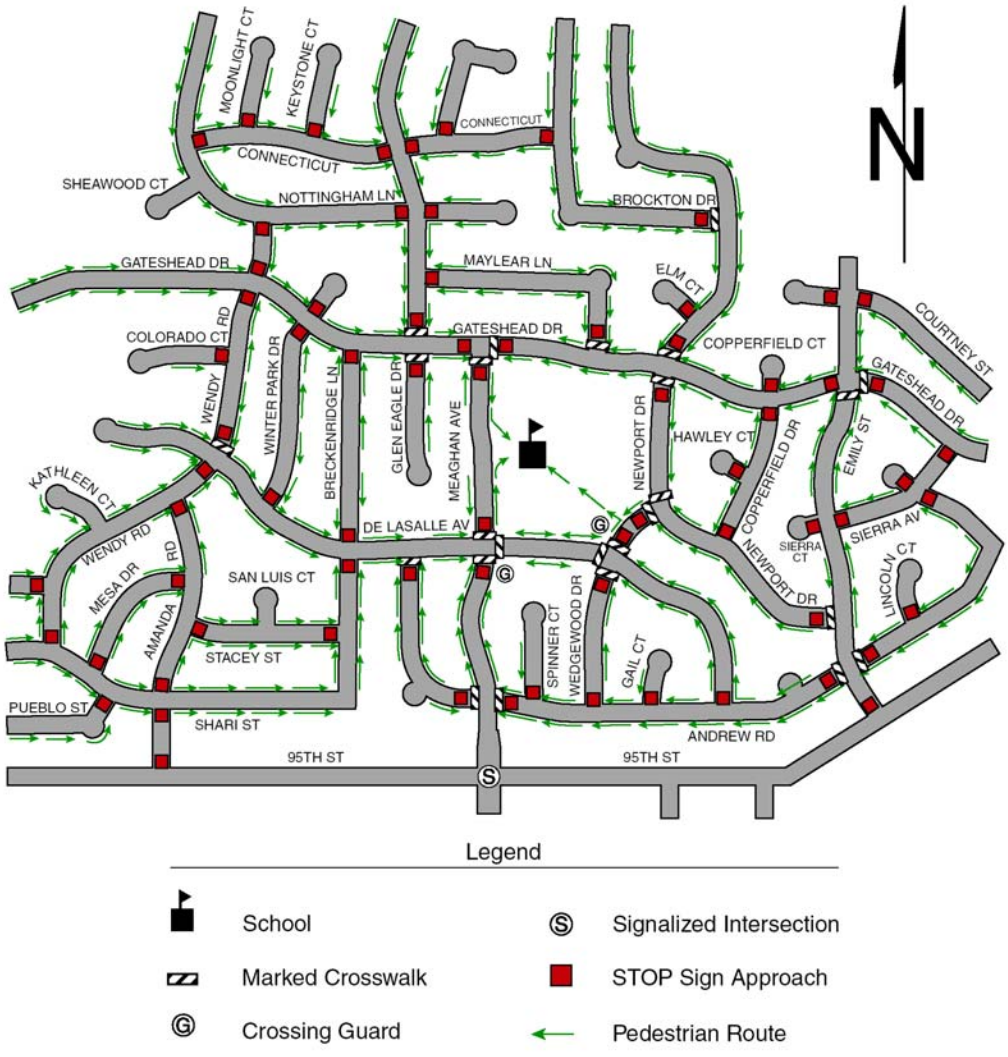
Middle and junior high school child access routing plans may include any elementary school child access routing plans within the middle/junior high school boundaries.

Each high school may also prepare a child access routing plan. High school child access routing plans may include any elementary, middle, or junior high child access routing plans within the high school boundaries.

STANDARD:

A School Zone (see definition in Section 7A.03) shall be placed for a high school only after a child access routing plan detailing each School Zone has been established for that high school and submitted to the appropriate UDOT Regional office and local jurisdiction(s) before July 1 of each year.

Figure 7A-1. Example Child Access Routing Plan Map



STANDARD:

School districts shall notify the UDOT Chief Railroad and Utilities Engineer (see address in Appendix F) in writing by July 1 of the locations of railroad crossings where a route on a child access routing plan crosses a rail line.

Re-notification shall not be required if the route on a child access routing plan crossing the rail line hasn't changed since the original notification.

The UDOT Chief Railroad and Utilities Engineer shall evaluate the crossing and provide any recommendations to the school district and highway agency.

Section 7A.03 School Crossing Control Criteria

SUPPORT:

Alternate gaps and blockages are inherent in the traffic stream and are different at each crossing location. For safety, students should wait for a gap in traffic that is of sufficient duration to permit reasonably safe crossing. When the delay between the occurrence of adequate gaps becomes excessive, students might become impatient and endanger themselves by attempting to cross the street during an inadequate gap.

STANDARD:

A School Zone shall be defined as a School Crosswalk Zone, a Reduced Speed School Zone, a Narrow School Route, an Abutting School Zone, or a School Bus Loading Zone. School Zones shall only be located along child access routes as indicated on the Child Access Routing Plan for elementary, middle, junior high, and high schools.

A School Zone shall not be installed unless warranted per this section.

OPTION:

Changeable message signs that display the speed of approaching vehicles (see Section 2B.13) may be used in conjunction with a School Zone.

STANDARD:

A School Crosswalk Zone shall be defined as the area of the roadway associated with a school crosswalk, including the approach to the crosswalk and associated signing. All School Crosswalk Zones shall be designated on the child access routing plan.

GUIDANCE:

A School Crosswalk Zone should be used if warranted per this section.

STANDARD:

A School Crosswalk Zone shall be warranted when it is determined through a count that the volume of school children exceeds 10 students during a period extending from not earlier than 45 minutes before school starts until 15 minutes after school starts, or a period from 15 minutes before the end of school to 45 minutes after school ends and either of the following conditions exist:

A. The street average daily traffic (ADT) exceeds 500 vehicles; or,
B. The hourly traffic volume during either of the time periods above exceeds 50 vehicles.

OPTION:

The volume of school children in the Standard above may be determined by both counts and projections.

STANDARD:

If projections are used to determine the volume of school children at a proposed School Crosswalk Zone, an engineering study shall be performed to verify the projections. Supporting data for the study shall include, as a minimum, enrollment information from the school district and a survey of affected parents to define anticipated usage of the proposed School Crosswalk Zone.

Except as noted in the Option below, a school crosswalk shall not be installed within 600 feet of another school crosswalk, or a marked pedestrian crosswalk, on the same roadway. The 600 foot spacing requirement shall not apply to another crosswalk at the same intersection, or to crosswalks on legs of intersecting roadways.

OPTION:

The 600 foot spacing may be reduced to a minimum of 300 feet when all of the following are met:

A. School pedestrian volume and pedestrian flow patterns support crosswalk spacing less than 600 feet, as determined by an engineering study;
B. Based upon the posted or 85th percentile speed, the required signing for each school crosswalk is able to be placed according to Appendix A with a minimum 100 foot spacing between the signs of each zone; and,
C. Only one of the crosswalks is a school crosswalk in a Reduced Speed School Zone.

GUIDANCE:

Two school crosswalks crossing the same roadway at an intersection should be located on the minor roadway. Only one school crosswalk should cross the major roadway.

A school crosswalk should not be installed at any location that has inadequate stopping sight distance as indicated in the most recent edition of "A Policy on Geometric Design of Highways and Streets," American Association of State Highway and Transportation Officials (AASHTO), which edition is incorporated by reference.

STANDARD:

The signing for a School Crosswalk Zone shall include the School Advance Warning assembly (see Section 7B.08) and the School Crosswalk Warning assembly (see Section 7B.09). Signing and pavement markings for a School Crosswalk Zone shall be as shown in Appendix A, Typical Applications, Figures A1 through A5.

A Reduced Speed School Zone shall be defined as the area of the roadway associated with a school crosswalk where the speed limit is reduced to 20 mph, including the approach to the crosswalk and associated signing. All Reduced Speed School Zones shall be designated on the child access routing plan. The reduced speed limit shall be in-force while the School Speed Limit assembly is operating.

GUIDANCE:

A Reduced Speed School Zone should be used if warranted per this section.

STANDARD:

A Reduced Speed School Zone shall be warranted when all of the following requirements are met:

A. The requirements for a School Crosswalk Zone (see above);
B. The posted speed limit is 50 mph or less;
C. The "Warrant for the Installation of a Reduced Speed School Zone," (see Appendix B1).

The signing for a Reduced Speed School Zone shall include the School Advance Warning assembly (see Section 7B.08), the School Speed Limit assembly (see Section 7B.11), the School Crosswalk Warning assembly (see Section 7B.09), and the END SCHOOL ZONE (S5-2) sign (see Section 7B.13). Signing and pavement markings for a Reduced Speed School Zone shall be as shown in Appendix A, Typical Applications, Figures A6 through A10.

Except as noted in the Option below, a Reduced Speed School Zone shall not be installed or maintained on an approach to an intersection controlled by:

A. A roundabout;
B. A traffic signal;
C. A STOP (R1-1) sign.

OPTION:

A Reduced Speed School Zone may be installed, or may be allowed to remain at a roundabout, signalized or stop-controlled intersection, as a mitigation measure for concerns relating to sight distance, grade, or other critical issues, as determined by an engineering study.

An Overhead School Speed Limit assembly may be used in a Reduced Speed School Zone if warranted per the requirements in this Section, Section 7B.11, and in "Requirements for Optional Installation of Overhead School Speed Limit Assembly in a Reduced Speed School Zone" (see Appendix B2).

STANDARD:

A Narrow School Route shall be defined as a portion of a walking route on the child access routing plan where there are no continuous sidewalks and the paved shoulders of the existing highway are less than three feet wide.

OPTION:

A Narrow School Route may be used if warranted per this section.

STANDARD:

A Narrow School Route shall be warranted when the School Traffic Safety Committee has determined that boundary changes, alternate access routes, or supplemental methods of transportation are not feasible. Narrow School Routes shall be reviewed by the School Traffic Safety Committee on an annual basis. The maximum length of a Narrow School Route shall be one mile in urban areas and two miles in rural areas.

If used, the signing for a Narrow School Route shall include the School Advance Warning (S1-1) sign with the NEXT X MILE(S) (W7-3a) plaque (see Section 7B.16). Signing and marking of a Narrow School Route shall be as shown in Appendix A, Typical Applications, Figure A11.

GUIDANCE:

A Narrow School Route should not be installed as a permanent substitute for sidewalks or pavement widening in urban areas.

STANDARD:

An Abutting School Zone shall be defined as an area of the roadway adjacent to school buildings or grounds, including the approach to such areas, with no associated school crosswalk.

OPTION:

An Abutting School Zone may be used based upon engineering judgement, and if used may be shown on the child access routing plan.

STANDARD:

If used, signing for an Abutting School Zone shall include the School Advance Warning (S1-1) sign, and shall not be supplemented with the AHEAD (W16-9p) plaque (see Section 7B.17 and Appendix A, Typical Applications, Figure A12).

A School Bus Loading Zone shall be defined as an area on-premise or off-premise of school property designated for the loading and unloading of students from school buses, including the associated signing and curb markings. All School Bus Loading Zones shall be designated on the child access routing plan.

The signing for a School Bus Loading Zone shall include either the School Buses Only (SS1-2) symbol sign or the SCHOOL BUSES ONLY (SS1-3) sign (see Section 7B.19). Curb markings shall be used as described in Section 7C.05.

With the exception of the option below, School Bus Loading Zones shall:

A. be used for on-premise school bus loading zones;
B. be separate from private vehicle loading and unloading areas;
C. be located so that students are not required to cross roadways or parking lot areas to access the school;
D. be located such that buses are not required to back up; and,
E. be at least 12 feet wide.

All newly constructed schools shall meet the above Standard for on-premise School Bus Loading Zones.

OPTION:

Existing School Bus Loading Zones may be allowed exceptions to Standards B through E above if those zones are demonstrated by the School Community Council to the School Traffic Safety Committee to have unusual conditions.

Off-premise School Bus Loading Zones may be used.

Section 7A.04 Scope

STANDARD:

This Part 7 Supplement sets forth basic principles and prescribes standards that shall be followed in the design, application and installation, and maintenance of all traffic control devices and other controls required for the special pedestrian conditions in School Zones. Such devices and controls include signs, signals, markings, cones, adult crossing guards, and student patrols.

Pedestrian flags shall not be used at school crosswalks within School Zones.

SUPPORT:

Requirements discussed in Chapter 2A and Section 2B.05 are applicable in School Zones.

Section 7A.05 Application of Standards

SUPPORT:

Sections 1A.02 and 1A.07 contain information regarding the application of standards.

Section 7A.06 Engineering Study Required

SUPPORT:

Section 1A.09 contains information regarding engineering studies.

Section 7A.07 Maintenance of Traffic Control Devices

SUPPORT:

Section 1A.05 contains information regarding the maintenance of traffic control devices.

Section 7A.08 Placement Authority

SUPPORT:

Section 1A.08 contains information regarding placement authority for traffic control devices.

Section 7A.09 Unauthorized Devices and Messages

SUPPORT:

Sections 1A.01 and 1A.08 contain information regarding unauthorized devices and messages.

STANDARD:

With the exception of required traffic control devices, the highway jurisdiction shall have the authority to immediately remove any signs, devices, messages, or vegetation from within its right-of-way in or near a School Zone which it deems to be confusing, distracting, or obstructing to the function of that School Zone.

Section 7A.10 Meaning of Standard, Guidance, Option, and Support

STANDARD:

When used in this Manual, the text headings shall be defined as follows:

1. **Standard—a statement of required, mandatory, or specifically prohibitive practice regarding a traffic control device. All standards are labeled, and the text appears in bold type. The verb shall is typically used. Standards are sometimes modified by Options.**

2. **Guidance—a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgment or engineering study indicates the deviation to be appropriate. All Guidance statements are labeled, and the text appears in unbolded type. The verb should is typically used. Guidance statements are sometimes modified by Options.**

3. **Option—a statement of practice that is a permissive condition and carries no requirement or recommendation. Options may contain allowable modifications to a Standard or Guidance. All Option statements are labeled, and the text appears in unbolded type. The verb may is typically used.**

4. **Support—an informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition, or enforceable condition. Support statements are labeled, and the text appears in unbolded type. The verbs shall, should, and may are not used in Support statements.**

Section 7A.11 Experimentation in School Zones

STANDARD:

To coordinate experimentation in School Zones statewide, local jurisdictions wishing to experiment shall submit a proposal to the UDOT Engineer for Traffic and Safety (see Appendix F for contact information). The UDOT Engineer for Traffic and Safety shall submit appropriate proposals to the Federal Highway Administration following the procedure described in Section 1A.10.

Section 7A.12 Private Schools and Places of Higher Learning

STANDARD:

Private schools shall be required to meet the requirements and specifications of this manual when requesting any feature described herein to be installed on a public right-of-way using the same age group classifications that public schools use.

Crosswalks associated with places of higher learning shall not be signed or marked as School Zones. Any such existing facilities shall be removed and treated as pedestrian facilities as described in the MUTCD.

OPTION:

Added emphasis to warning signs associated with pedestrian crosswalks may be achieved using a fluorescent yellow background, flashing beacons, or larger sign sizes (see MUTCD, Table 2C-2).

CHAPTER 7B. SIGNS

Section 7B.01 Size of School Signs

STANDARD:

The sizes of the signs and plaques to be used on conventional roads in School Zones shall be as shown in Table 7B-1.

The Conventional Road sign size shall be used on public roads, streets, and highways unless engineering judgement determines that an Oversized sign size would be more appropriate.

The Oversized sign size shall be used on expressways.

Table 7B-1. Size of School Zone Signs and Plaques

Sign/Plaque	MUTCD Code	Conventional Road	Oversized
SIGNS			
School Advance Warning	S1-1	36 x 36 in	48 x 48 in
SCHOOL BUS STOP AHEAD	S3-1	30 x 30 in	36 x 36 in
Reduced Speed School Zone Ahead	S4-5 S4-5a	36 x 36 in	48 x 48 in
SCHOOL SPEED LIMIT 20 WHEN FLASHING	S5-1	24 x 48 in	36 x 72 in
END SCHOOL ZONE	S5-2	24 x 30 in	36 x 48 in
School Buses Only (symbol)	SS1-2	12 x 24 in	-
SCHOOL BUSES ONLY	SS1-3	12 x 18 in	-
Yield Here to Pedestrians	R1-5	18 x 18 in	30 x 30 in
Yield Here to Pedestrians	R1-5a	18 x 24 in	30 x 42 in
In-Street Pedestrian Crossing	RS1-6	12 x 36 in	-
PLAQUES			
Specific Periods of Operation	S4-1	12 x 6 in	-
ALL YEAR	SS1-1p	36 x 12 in	48 x 18 in
NEXT X MILE(S)	W7-3a	36 x 24 in	48 x 30 in
Diagonal Arrow	W16-7p	24 x 12 in	30 x 18 in
AHEAD	W16-9p	24 x 12 in	30 x 18 in

OPTION:

The Oversized sign size may be used for applications that require increased emphasis, improved recognition, or increased legibility.

Section 7B.02 Illumination and Reflectorization

STANDARD:

The signs used for School Zone traffic control shall be retroreflectorized or illuminated.

Section 7B.03 Position of Signs and Cones

STANDARD:

Position of signs and cones shall be as prescribed in Appendix A, Figures A1 through A12.

GUIDANCE:

Signs should be placed in positions where they will convey their messages most effectively without restricting lateral clearance or sight distances. Placement therefore should consider highway design, alignment, vehicle speed, and roadside development. Other signing that could potentially conflict with school zone signing should be evaluated for removal or relocation.

Signs should have a maximum practical clearance from the edge of the traveled way for the safety of vehicles that might leave the roadway and strike the sign supports. Except as noted in the Option below, signs should not be closer than 6 feet from the edge of a paved shoulder, or if none, 12 feet from the edge of the traveled way measured to the edge of the sign.

OPTION:

In urban areas, a lesser clearance of not less than 2 feet from the face of the curb may be used. In urban areas, where sidewalk width is limited or existing poles are close to the curb, a clearance of 1 foot from the curb face may be used.

STANDARD:

Either cones or the In-Street School Crossing assembly (see Section 7B.20) shall be used at school crosswalks where adult crossing guards are present, except at signalized intersections where cones shall be used.

The In-Street School Crossing assembly shall be the only in-street sign used in School Zones.

Cones shall be a minimum 28 inches high, orange in color, and retroreflectorized. Retroreflectorization of cones that are 28 to 36 inches in height shall be provided by a 6 inch wide white band located 3 to 4 inches from the top of the cone and an additional 4 inch wide white band located approximately 2 inches below the 6 inch band.

When used, the In-Street School Crossing assembly, or cones, shall:

A. be placed on the centerline of the roadway between opposing traffic lanes on each side of the school crosswalk (see Appendix A, Typical Applications, Figures A6 through A10);
B. not be placed on lane lines separating traffic in the same direction;
C. not be placed in travel lanes; and
D. not be supplemented with auxiliary flags, signs, or lights.

Section 7B.04 Height of Signs

STANDARD:

In rural districts, signs installed at the side of the road shall be at least 5 ft, measured from the bottom of the sign to the near edge of the pavement. In urban districts, the clearance to the bottom of the sign(s) shall be at least 7 ft. Where pedestrian or parking movements occur, the clearance to the bottom of the sign(s) shall be at least 7 ft.

OPTION:

When the sign is not mounted over a location where pedestrian or parking movements occur, the clearance to the bottom of a secondary sign mounted below another sign may be 1 ft less than the height specified above.

STANDARD:

When the Yield Here to Pedestrians (R1-5, R1-5a) sign is used (see Section 7B.15), the height of the bottom of the School Crosswalk Warning assembly (see Section 7B.09) shall be no less than the top of the Yield Here to Pedestrians sign.

SUPPORT:

In a school zone containing the Yield Here to Pedestrians sign, the mounting height of the School Crosswalk Warning assembly is higher to preclude it from being obscured by the Yield Here to Pedestrians sign.

Section 2A.18 contains information regarding the mounting height of signs.

Section 7B.05 Installation of Signs

SUPPORT:

Section 2A.16 contains information regarding the installation of signs.

Section 7B.06 Lettering

SUPPORT:

The Federal Highway Administration's "Standard Highway Signs" book (see Section 1A.11) contains information regarding sign lettering.

Section 7B.07 Sign Color for School Warning Signs

STANDARD:

The following signs shall have a fluorescent yellow-green background with black legend and border (see Figures 7B-1 and 7B-2):

A. School Advance Warning sign (S1-1);
B. SCHOOL BUS STOP AHEAD sign (S3-1);
C. Reduced Speed School Zone Ahead sign (S4-5, S4-5a);
D. The SCHOOL portion of the School Speed Limit sign (S5-1);
E. The outer background of the In-Street Pedestrian Crossing sign (RS1-6);
F. ALL YEAR plaque (SS1-1p);
G. NEXT X MILE(S) plaque (W7-3a);
H. Diagonal Arrow plaque (W16-7p); and,
I. AHEAD plaque (W16-9p).

The fluorescent yellow-green background shall not be used for any signs (in School Zones or otherwise) other than those listed above.

All new sign installations of the types above, including replacements, shall meet the color requirements in this Standard.

OPTION:

Added emphasis to warning signs other than those listed above may be achieved using a fluorescent yellow background.

Section 7B.08 School Advance Warning Assembly (S1-1 with Supplemental Plaque(s))

STANDARD:

A School Advance Warning assembly (see Figure 7B-2) shall be installed in advance of the School Crosswalk Warning assembly in a School Crosswalk Zone (see Appendix A, Typical Applications, Figures A1 through A5) and in advance of the School Speed Limit assembly (see Section 7B.11) in a Reduced Speed School Zone (see Appendix A, Typical Applications, Figures A6 through A10).

The School Advance Warning assembly shall consist of the School Advance Warning sign (S1-1) with a supplementary AHEAD (W16-9p) plaque.

A supplementary ALL YEAR (SS1-1p) plaque (see Section 7B.18) shall be installed between the School Advance Warning (S1-1) sign and the AHEAD (W16-9p) plaque for year-round schools.

The School Advance Warning assembly shall be installed not less than 238 feet nor more than 700 feet in advance of the school crosswalk.

If a school crosswalk is installed at a roundabout, the School Advance Warning assembly shall be installed on all approaches to the roundabout.

A reduced size in-street School Advance Warning assembly (see MUTCD 7B.08) shall not be used in the roadway in advance of school crosswalks.

Section 7B.09 School Crosswalk Warning Assembly (S1-1 with Diagonal Arrow)

STANDARD:

The School Crosswalk Warning assembly (see Figure 7B-2) shall be installed at the school crosswalk, or as close to it as possible. The School Crosswalk Warning assembly shall not be installed on approaches controlled by a STOP (R1-1) sign.

The School Crosswalk Warning assembly shall consist of a School Advance Warning (S1-1) sign, supplemented directly below by a downward pointing Diagonal Arrow (W16-7p) plaque to show the location of the crossing.

The ALL YEAR (SS1-1p) plaque and the School Crossing (S2-1) sign (1988 MUTCD) shall not be used as part of the School Crosswalk Warning assembly.

A reduced size in-street School Crosswalk Warning assembly (see MUTCD 7B.09) shall not be used in the roadway at school crosswalks.

SUPPORT:

The mounting height of the School Crosswalk Warning assembly is higher when used in conjunction with the Yield Here to Pedestrians sign (see Section 7B.04).

Section 7B.10 SCHOOL BUS STOP AHEAD Sign (S3-1)

GUIDANCE:

The SCHOOL BUS STOP AHEAD (S3-1) sign should be installed in advance of locations where a school bus, when stopped at the bus stop, is not visible for a distance of 500 ft in advance and where there is no opportunity to relocate the bus stop to provide 500 ft of visibility.

OPTION:

The SCHOOL BUS STOP AHEAD (S3-1) sign may be installed in advance of school bus stops along high speed roadways with limited refuge area for waiting students.

Section 7B.11 School Speed Limit Assembly (S5-1 with Speed Limit Sign Beacons)

STANDARD:

A School Speed Limit assembly (SCHOOL SPEED LIMIT 20 MPH WHEN FLASHING (S5-1) sign with Speed Limit Sign Beacons, see Figure 7B-1) shall be used to indicate the speed limit where a Reduced Speed School Zone has been established. The School Speed Limit assembly shall establish the point where the reduced speed zone begins (See Appendix A, Typical Applications, Figures A6 through A10).

The school speed limit displayed shall be 20 mph. The School Speed Limit assembly shall be in substantial conformance with the specifications of UDOT Standard Drawing SN 2 (post-mounted) or SN 3 (overhead) (see the UDOT website at www.udot.utah.gov). The flashing lights of the Speed Limit Sign Beacons shall flash yellow alternately, left and right. Power shall be the responsibility of the local jurisdiction.

OPTION:

Incandescent bulbs and 8-inch lenses may be used for the post-mounted School Speed Limit assembly (see UDOT Standard Drawing SN-2).

STANDARD:

The in-force period for a school reduced speed limit shall be:

A. a time extending from not earlier than 45 minutes before school starts until warranted demand ceases (normally 15 minutes after school begins); and,

B. a time extending from the beginning of the warranted demand (normally 15 minutes

prior to the end of school), to not later than 45 minutes after school ends; and,

C. time frames similar to A and B for other school programs throughout the day when the minimum conditions for a Reduced Speed School Zone exist (see Section 7A.03).

The School Speed Limit Sign Beacons shall not flash continuously throughout the school day.

At installations requiring an adult crossing guard, the School Speed Limit Sign Beacons shall be operated manually and only while the crossing guard is present. Installations which do not require adult crossing guards shall be operated by an automatic timer with a programmable yearly cycle. At such installations, the local jurisdiction shall be responsible to program and operate the automatic timer.

The Specific Periods of Operations (S4-1) plaque and the WHEN CHILDREN ARE PRESENT (S4-2) plaque shall not be used with the School Speed Limit assembly.

OPTION:

An Overhead School Speed Limit assembly (OSSLA) may be used in a Reduced Speed School Zone if warranted per the requirements in Section 7A.03, this Section, and in "Requirements for Optional Installation of Overhead School Speed Limit Assembly in a Reduced Speed School Zone" (see Appendix B2).

STANDARD:

Local jurisdictions shall be responsible for applying the warrant process, coordinating funding, and maintenance of an OSSLA on non-state routes.

On state routes, requests from school districts or local jurisdictions for an OSSLA shall be submitted to the appropriate UDOT Region office (see Appendix F for contact information). After screening each request using the OSSLA warrant process, the Region shall forward requests that meet the criteria to the UDOT Engineer for Traffic and Safety for final determination. If it is determined that the OSSLA will be installed, the Traffic and Safety Division shall:

A. Establish priorities for funding OSSLA requests;

B. Program OSSLA projects according to priorities and available funding; and,

C. Initiate agreements for each location with the following responsibilities:

1. UDOT for design and installation;

2. UDOT for maintenance;

3. Local jurisdiction for power; and,

4. Local jurisdiction and/or school district for funding of OSSLAs for new schools.

OSSLAs shall not be installed in a Reduced Speed School Zone on an approach to a signalized intersection.

OPTION:

An existing OSSLA on an approach to an intersection upgraded to signalized control may be allowed to remain in place based on sight distance, grade, or other critical issues as determined by an engineering study.

STANDARD:

If an existing OSSLA is allowed to remain at an intersection upgraded to signalized control, it shall be located such that the required decision sight distance is provided at the signal per the AASHTO publication, "A Policy on Geometric Design of Highways and Streets," current edition. If the sight distance is not provided with the OSSLA in the existing location, and it is still desirable to retain the OSSLA, it shall be relocated to a position that provides the proper sight distance.

Section 7B.12 Reduced Speed School Zone Ahead sign (S4-5, S4-5a)

OPTION:

The Reduced Speed School Zone Ahead (S4-5, S4-5a) sign (see Figure 7B-2) may be used to inform the road users of a Reduced Speed School Zone when engineering judgment indicates that advance notice would be appropriate.

STANDARD:

If used, the Reduced Speed School Zone Ahead (S4-5, S4-5a) sign shall be installed in advance of a Reduced Speed School Zone (See Appendix A, Typical Applications, Figures A5 through A8).

The speed limit displayed on the Reduced Speed School Zone Ahead sign shall be 20 mph.

The School Reduced Speed Ahead assembly (R2-5a with S4-3 plaque, 2000 MUTCD) shall not be used.

Section 7B.13 END SCHOOL ZONE Sign (S5-2)

STANDARD:

The end of a Reduced Speed School Zone shall be marked with an END SCHOOL ZONE (S5-2) sign (see Figure 7B-1). The END SCHOOL ZONE (S5-2) sign shall be located 50 feet on the far side of the school crosswalk, on the far side of the intersection (as practical), or 50 feet beyond the YIELD sign in a roundabout as part of a Reduced Speed School Zone (see Appendix A, Typical Applications, Figures A6 through A10).

Section 7B.14 Parking and Stopping Signs (R7 and R8 Series)

STANDARD:

Parking and stopping shall be restricted in the approach to, and beyond, school crosswalks in School Zones during school hours including loading and unloading periods (see Appendix A, Typical Applications, Figures A1 through A10).

Parking and stopping shall be restricted upon the side(s) of the highway designated as a Narrow School Route from 45 minutes before school starts to 45 minutes after school ends.

OPTION:

Parking and stopping may be restricted along approaches to the School Advance Warning assembly, and the School Speed Limit assembly. Parking and stopping may also be restricted upon all streets immediately abutting the school grounds during school hours including loading and unloading periods.

SUPPORT:

Refer to Sections 2B.34, 2B.35, and 2B.36 of the MUTCD for details of Parking and Stopping signing.

Section 7B.15 Yield Here To Pedestrians Sign (R1-5, R1-5a)

OPTION:

The Yield Here to Pedestrians (R1-5, R1-5a) sign (See Figure 7B-1) may be used at unsignalized, midblock school crosswalks.

STANDARD:

If used, the Yield Here To Pedestrians (R1-5, R1-5a) sign shall be placed 20 to 50 feet in advance of an unsignalized midblock school crosswalk and shall be accompanied by yield lines (see Section 7C.04 and Appendix A, Typical Applications, Figures A5 and A7).

SUPPORT:

The mounting height of the School Crosswalk Warning assembly is higher when this sign is used (see Section 7B.04).

Section 7B.16 Narrow School Route Assembly (S1-1 and W7-3a)

OPTION:

A Narrow School Route may be used if warranted per Section 7A.03.

STANDARD:

If used, the Narrow School Route assembly (see Figure 7B-2) shall consist of a School Advance Warning (S1-1) sign with a supplementary NEXT X MILE(S) (W7-3a) plaque (see Appendix A, Figure A11).

The distance displayed on the NEXT X MILE(S) (W7-3a) plaque shall be in ¼-mile increments up to a maximum of one mile in urban areas and in ½-mile increments up to a maximum of two miles in rural areas.

A supplementary ALL YEAR (SS1-1p) plaque (see Section 7B.18) shall be installed between the School Advance Warning (S1-1) sign and the NEXT X MILE(S) (W7-3a) plaque for year-round schools.

Section 7B.17 Abutting School Zone (S1-1)

OPTION:

An Abutting School Zone may be used based upon engineering judgement, and if used may be shown on the child access routing plan.

STANDARD:

If used, the signing for an Abutting School Zone shall include the School Advance Warning (S1-1) sign (See Figure 7B-2), and shall not be supplemented with the AHEAD (W16-9p) plaque. The School Advance Warning (S1-1) sign with supplementary ALL YEAR (SS1-1p) plaque shall be used for year-round schools (see Section 7B.18 and Appendix A, Typical Applications, Figure A12).

SUPPORT:

Refer to Section 7C.06 for use of the SCHOOL word marking in an Abutting School Zone.

Section 7B.18 ALL YEAR Plaque (SS1-1p)

STANDARD:

A supplementary ALL YEAR (SS1-1p) plaque (see Figure 7B-2) shall be used in conjunction with a year-round school as part of the School Advanced Warning assembly, the Narrow School Route assembly, and the Abutting School Zone assembly.

When the ALL YEAR (SS1-1p) plaque is used:

A. As part of the School Advance Warning assembly, it shall be placed between the School Advance Warning sign (S1-1) and the AHEAD (W16-9p) plaque.

B. As part of the Narrow School Route assembly, it shall be placed between the School Advance Warning sign (S1-1) and the NEXT X MILE(S) (W7-3a) plaque.

C. As part of the Abutting School Zone assembly, it shall be placed below the School Advance Warning sign (S1-1).

The sign design for the ALL YEAR (SS1-1p) plaque shall conform to Appendix D.

Section 7B.19 School Bus Loading Zone Signs (SS1-2 and SS1-3)

STANDARD:

When used, a School Bus Loading Zone sign [School Buses Only (SS1-2) symbol sign or SCHOOL BUSES ONLY (SS1-3) sign] (See Figure 7B-1) shall mark the beginning and ending of each School Bus Loading Zone. Intermediate signs shall be installed at approximate 50 foot spacing within the Zone.

The School Buses Only (SS1-2) symbol sign and the SCHOOL BUSES ONLY (SS1-3) sign shall have a white background with red legend and border. The bus symbol on the SS1-2 sign shall be black (see Appendix D for sign design).

If a School Bus Loading Zone is used off-premise, and parking is allowed during non-school bus loading times, a Specific Periods of Operation (S4-1) plaque shall be used below the School Buses Only signs to designate bus only times.

OPTION:

Either the School Buses Only (SS1-2) symbol sign or the SCHOOL BUSES ONLY (SS1-3) sign may be used in a School Bus Loading Zone.

Section 7B.20 In-Street School Crossing Assembly (Two RS1-6 signs back-to-back)

STANDARD:

If used, the In-Street School Crossing assembly shall consist of two In-Street School Crossing (RS1-6) signs (see Figure 7B-1) mounted back-to-back. The In-Street School Crossing sign shall have a black legend (except for the red YIELD sign symbol) and border on a white inner background and a fluorescent yellow-green outer background (see Appendix D for sign design). The In-Street Pedestrian Crossing (R1-6 and R1-6a) signs shall not be used.

The In-Street School Crossing assembly shall not be used at signalized locations.

If the In-Street School Crossing assembly is placed in the roadway, the sign support shall comply with the breakaway requirements of the latest edition of AASHTO's "Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" (see MUTCD, page i).

SUPPORT:

Use sign supports for the In-Street School Crossing assembly that meet AASHTO's "Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" or NCHRP-350, meeting the requirements of and certified as a Category 2 device by the Federal Highway Administration.

The Provisions of Section 2A.18 concerning mounting height are not applicable for the In-Street School Crossing assembly.

Section 7B.21 TURNING TRAFFIC MUST YIELD TO PEDESTRIANS Sign (R10-15)

OPTION:

In order to remind drivers who are making turns to yield to pedestrians, especially at intersections where right turn on red is permitted and school and pedestrian crosswalks are marked, a TURNING TRAFFIC MUST YIELD TO PEDESTRIANS (R10-15) sign may be used (see Figure 7B-1, and Appendix A, Figure A9).

Figure 7B-1. Regulatory School Zone Signs

S5-1

School Speed Limit Assembly
(Shown with Flashing Beacons)

RS1-6

In-Street School Crossing Assembly (Optional Use)

S5-2

END SCHOOL ZONE Sign

R1-5 **OR**

R1-5a

Yield Here to Pedestrians Sign (Optional Use)

R10-15

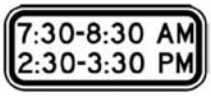
TURNING TRAFFIC MUST YIELD TO PEDESTRIANS Sign (Optional Use)

SS1-2

School Buses Only (Symbol) Sign

SS1-3

SCHOOL BUSES ONLY Sign



S4-1

Specific Periods of Operation Plaque
(for parking restrictions)

Figure 7B-2. Warning School Zone Signs

S1-1
SS1-1
W16-9p

School Advance Warning Assembly
(Shown for year-round school)

S1-1
W16-7p

School Crosswalk Warning Assembly

S1-1
SS1-1

Abutting School Zone
(Shown for year-round school)

S1-1
SS1-1
W7-3a

Narrow School Route Assembly
(Shown for year-round school)

S3-1

SCHOOL BUS STOP AHEAD Sign

S4-5 **OR**

S4-5a

Reduced Speed School Zone Ahead Sign (Optional Use)

CHAPTER 7C. MARKINGS

Section 7C.01 Functions and Limitations

SUPPORT:

Markings have definite and important functions in a proper scheme of School Zone traffic control. In some cases, they are used to supplement the regulations or warnings provided by other devices, such as traffic signs or signals. In other instances, they are used alone and produce results that cannot be obtained by the use of any other device. In such cases they serve as an effective means of conveying certain regulations, guidance, and warnings that could not otherwise be made clearly understandable.

Pavement markings have limitations. They might be obliterated by snow, might not be clearly visible when wet, and might not be durable when subjected to heavy traffic. In spite of these limitations, they have the advantage, under favorable conditions, of conveying warnings or information to the road user without diverting attention from the road.

Section 7C.02 Standardization of Application

STANDARD:

Each standard marking shall be used only to convey the meaning prescribed for it in the MUTCD. Markings associated with a School Zone shall not be required on unpaved roads.

Section 7C.03 Crosswalk Markings

STANDARD:

Crosswalk markings shall be white in color.

SUPPORT:

Crosswalk markings provide guidance for pedestrians who are crossing roadways by defining and delineating paths on approaches to and within signalized intersections, and on approaches to other intersections where traffic stops.

Crosswalk markings also serve to alert road users of a pedestrian crossing point across roadways not controlled by highway traffic signals or STOP signs.

At non-intersection locations, crosswalk markings legally establish the crosswalk.

See Standard Drawing ST 9 on the UDOT website at www.udot.utah.gov for additional pavement marking information.

STANDARD:

Longitudinal crosswalk markings shall be used for all school crosswalks within School Crosswalk Zones and Reduced Speed School Zones. The longitudinal lines shall be 24-inches wide and spaced 24-inches to 36-inches apart. The length of the longitudinal lines shall be 9 foot minimum.

Longitudinal crosswalk markings shall be reserved for school crosswalks. Transverse and Diagonal (special emphasis) line crosswalk markings shall not be used for school crosswalks within School Crosswalk Zones or Reduced Speed School Zones.

Section 7C.04 Stop and Yield Lines

STANDARD:

A Stop line shall consist of a solid white line extending across approach lanes to indicate the point at which the stop is intended or required to be made. A Stop line shall be 12- to 24-inches wide.

A Stop line in advance of a school crosswalk shall be placed, and only placed, at locations controlled by a traffic signal or by a STOP (R1-1) sign.

A Yield line shall consist of a row of white isosceles triangles pointing toward approaching vehicles extending across approach lanes to indicate the point at which the yield is intended or required to be made. The individual triangles comprising the yield line shall have a minimum base width of 24-inches and a height equal to 1.5 times the base width. The space between the triangles shall be 6 to 12-inches.

A Yield line shall be placed in advance of a school crosswalk at locations controlled by a YIELD (R1-2) sign.

If a Yield line is used in advance of an unsignalized midblock school crosswalk, the Yield Here To Pedestrians (R1-5, R1-5a) sign shall be used (see Section 7B.15).

GUIDANCE:

Stop lines at mid-block signalized locations should be placed at least 40 ft in advance of the nearest signal indication (see Section 4D.15).

If used, stop and yield lines should be placed a minimum of 4 ft in advance of and parallel to the nearest crosswalk line at controlled intersections, except for yield lines at roundabout intersections as provided for in Section 3B.24 and at midblock crosswalks.

SUPPORT:

See UDOT Standard Drawing ST 9 on the UDOT website at www.udot.utah.gov for details concerning stop lines and yield lines.

Section 7C.05 Curb Markings for Parking Regulations

STANDARD:

Signs shall be used with curb markings in those areas where curb markings are frequently obliterated by snow and ice accumulation, unless the no parking zone is controlled by statute or local ordinance.

GUIDANCE:

When curb markings are used without signs to convey parking regulations, a legible word marking regarding the regulation (such as "No Parking" or "No Standing") should be placed on the curb.

OPTION:

Local highway agencies may prescribe special colors for curb markings to supplement standard signs for non-School Bus Loading Zone parking regulation.

STANDARD:

Curbs within on-premise School Bus Loading Zones shall be painted yellow-green.

OPTION:

Curbs within off-premise School Bus Loading Zones may be painted either red or yellow-green.

Section 7C.06 Pavement Word and Symbol Markings

STANDARD:

Word and symbol markings shall be white in color. Word and symbol markings shall not be used for mandatory messages except in support of standard signs.

GUIDANCE:

Letters and numerals should be 6 feet or more in height. Letters, numerals and symbols should be in accordance with the Federal Highway Administration's "Standard Highway Signs" book (see Section 1A.11 of the MUTCD).

The longitudinal space between word or symbol message markings, including arrow markings, should be at least four (4) times the height of the characters for low speed roads, but not more than ten (10) times the height of the characters under any conditions.

STANDARD:

The SCHOOL word marking shall be installed in the traffic lane(s) adjacent to the School Advance Warning assembly (S1-1 with supplementary plaques) (see Appendix A, Typical Applications, Figures A1 through A10).

The SCHOOL word marking shall be wholly contained within the traffic lane, and shall not encroach on lane striping or other pavement markings.

Except as noted in the Option below, pavement word and symbol markings shall be no more than one lane in width (see Standard Drawing ST 9 on the UDOT website at www.udot.utah.gov).

OPTION:

The SCHOOL word marking may extend the width of two travel lanes.

STANDARD:

The two-lane SCHOOL marking shall only be used on highways with an even number of travel lanes. Highways with an odd number of travel lanes shall use a SCHOOL marking in each lane.

If the two-lane SCHOOL marking is used, the letters shall be 10 feet or more in height (see Standard Drawing ST 9 on the UDOT website at www.udot.utah.gov).

OPTION:

The SCHOOL word marking may be used in an Abutting School Zone adjacent to the School Advance Warning (S1-1) sign.

Section 7C.07 Center, Lane and Edge Lines

STANDARD:

On paved roads, a School Crosswalk Zone or Reduced Speed School Zone shall be marked as follows (see Appendix A, Typical Applications, Figures A1 through A10):

A. With no two-way left-turn lane (TWLTL), the center line shall be a solid double yellow line between any two travel lanes moving in opposing directions for the entire length of a School Crosswalk Zone or a Reduced Speed School Zone (between the School Advance Warning assemblies in both cases);

B. With a TWLTL, striping shall be as per Part 3 of the MUTCD and Appendix A, Typical Applications, Figures A5 and A7; and,

C. Lane line(s) shall be solid white between any two travel lanes moving in the same direction approaching the crosswalk. The length of the solid white lines shall be based on either the posted speed limit or the 85th percentile speed (see Appendix A, Typical Applications, Figures A1 through A10).

GUIDANCE:

On non-paved roads, the standard signing for a School Crosswalk Zone or a Reduced Speed School Zone should be supplemented with the DO NOT PASS (R4-1) sign and the PASS WITH CARE (R4-2) sign.

OPTION:

An 8-inch solid white edge line may be installed for the length of the Narrow School Route (see Appendix A, Typical Applications, Figure A11).

CHAPTER 7D. SIGNALS

Section 7D.01 General

SUPPORT:

Part 4 of the MUTCD contains information regarding highway traffic signals in School Zones. The School Crossing signal warrant is described in Section 4C.06.

Reduced Speed School Zones at traffic signals is addressed in Section 7A.03 of this Supplement.

The Overhead School Speed Limit assembly at a traffic signal is addressed in Section 7B.11 of this Supplement.

CHAPTER 7E. CROSSING SUPERVISION

Section 7E.01 Types of Crossing Supervision

SUPPORT:

There are two types of school crossing supervision:

A. Adult control of pedestrians and vehicles by adult crossing guards or uniformed law enforcement officers; and,
B. Student control of only pedestrians with student patrols.

Information for the organization, operation and administration of an adult crossing guard program are given in "Civilian Guards For School Crossings" (available from the Center for Public Safety of Northwestern University, 405 Church Street, Evanston, IL 60204) and "Adult School Crossing Guards" (available from the American Automobile Association, 1000 AAA Drive, Heathrow, FL 32746).

Information for the organization, administration and operation of a student patrol program are given in "Policies and Practices for School Safety Patrols" (available from the American Automobile Association, 1000 AAA Drive, Heathrow, FL 32746).

Section 7E.02 Adult Crossing Guards

STANDARD:

Adult crossing guards shall be required for elementary schools (see Appendix B3) at:

A. All Reduced Speed School Zones;
B. School Crosswalk Zones at signalized intersections where the posted speed limit is 30 mph or greater; and,
C. School Crosswalk Zones at roundabouts.

OPTION:

Adult crossing guards may be used at all other School Crosswalk Zones and Reduced Speed School Zones (see Appendix B3).

STANDARD:

For elementary schools, if no adult crossing guard is provided per the Standard above, then that School Crosswalk Zone or Reduced Speed School Zone shall be removed, and the school child access routing plan shall be reviewed and changed by the School Community Council.

Section 7E.03 Qualifications of Adult Crossing Guards

SUPPORT:

High standards for selection of adult crossing guards are essential.

GUIDANCE:

Adult crossing guards should possess the following qualifications:

A. Average intelligence;
B. Good physical condition, including sight, hearing, and mobility;
C. Mental alertness;
D. Neat appearance;
E. Good character;
F. Dependability; and,
G. Sense of responsibility for safety of students.

OPTION:

A background check may be conducted on potential adult crossing guards by local law enforcement.

Section 7E.04 Uniform of Adult Crossing Guards and Student Patrols

STANDARD:

Adult crossing guards shall wear high-visibility retroreflective safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel" (see Section 1A.11) and labeled as meeting the ANSI 107-1999 standard performance for Class 2 risk exposure.

Student patrols shall wear high-visibility retroreflective safety apparel labeled as meeting the ANSI 107-1999 standard performance for Class 1 risk exposure.

The safety apparel background (outer) material color shall be either fluorescent orange-red or fluorescent yellow-green as defined in ANSI 107-1999. The retroreflective material shall be either orange, yellow, white, silver, yellow-green, or a fluorescent version of these colors, and shall be visible at a minimum distance of 1,000 feet. The retroreflective safety apparel shall be designed to clearly identify the wearer as a person.

Section 7E.05 Operating Procedures for Adult Crossing Guards

GUIDANCE:

Adult crossing guards should not direct traffic in the usual law enforcement regulatory sense. In the control of traffic, they should pick opportune times to create a reasonably safe gap. At these times, they should stand in the roadway to indicate that pedestrians are about to use or are using the crosswalk, and that all vehicular traffic must stop.

STANDARD:

Adult crossing guards shall use a STOP paddle. The STOP paddle shall be the primary hand-signaling device.

The STOP paddle shall be an octagonal shape. The background of the STOP paddle face shall be red with 6-inch capital white letters and border. The paddle shall be 18-inch in size and shall have the word message STOP on both sides. The paddle shall be retroreflectorized or illuminated when used during hours of darkness.

At Reduced Speed School Zones requiring an adult crossing guard, the School Speed Limit Sign Beacons shall be operated manually by the crossing guard and only while the crossing guard is present.

The use and placement of In-Street School Crossing assemblies or cones in a School Zone shall be the responsibility of the adult crossing guard.

OPTION:

The STOP paddle may be modified to improve conspicuity by incorporating red or white flashing lights on both sides of the paddle. The red or white flashing lights may be arranged in any of the following patterns:

A. Two red or white lights centered vertically above and below the STOP legend;
B. Two red or white lights centered horizontally on each side of the STOP legend;
C. One red or white light centered below the STOP legend; or
D. A series of eight or more small red or white lights no larger than 0.25 inches in diameter along the outer edge of the paddle, arranged in an octagonal pattern at the eight corners of the STOP paddle. More than eight lights may be used only if the arrangement of the lights is such that it clearly conveys the octagonal shape of the STOP paddle.
E. A series of white lights forming the shapes of the letters in the legend.

STANDARD:

If flashing lights are used on the STOP paddle, the flash rate shall be at least 50, but not more than 60, flash periods per minute.

GUIDANCE:

Adult crossing guards should not park their vehicle in a manner which limits the visibility of signs, markings, students, or other vehicles within a school zone. The vehicle should not block the child access route.

Section 7E.06 Uniformed Law Enforcement Officers

OPTION:

Uniformed law enforcement officers may be used for school crossing supervision.

Section 7E.07 Student Patrols

STANDARD:

Student patrols shall not direct vehicular traffic. Student patrols shall not function as uniformed law enforcement officers or as adult crossing guards.

OPTION:

Students patrols may be used to direct and control pedestrians at crossings near schools where adequate gaps in traffic occur frequently enough so that gaps do not need to be created.

Student patrols may be used to direct and control pedestrians at signalized intersections where turning movements are not a significant problem, and may be used to assist adult crossing guards in the control of pedestrians at crossing locations used by large numbers of pedestrians.

Section 7E.08 Choice of Student Patrols

GUIDANCE:

Student patrols should be carefully selected. They should be students from the fifth grade or higher. Leadership and reliability should be determining qualities for patrol membership.

Parental approval should be obtained in writing before a student is used as a member of a student patrol.

Section 7E.09 Operating Procedures for Student Patrols

GUIDANCE:

Student patrols should use a flagging device to stop pedestrians behind the curb or edge of the roadway, and should allow them to cross only when there is an adequate gap in traffic.

STANDARD:

Flagging devices used during periods of twilight or darkness shall be retroreflective or illuminated.

Because they are not authorized to direct vehicular traffic, student patrols shall not use a STOP paddle.

Section 7E.10 Training for Adult Crossing Guards

STANDARD:

Adult crossing guards shall be trained by the local jurisdiction, as a minimum, in the following:

A. Uniform and equipment;
B. Operation procedures;
C. Traffic safety, rules and regulations; and,
D. Emergency procedures, including first aid and CPR.

Adult crossing guards shall attend a refresher course every year.

Section 7E.11 Legal Authority for Adult Crossing Guards

STANDARD:

Adult crossing guards shall be provided and regulated by the local jurisdiction.

In instances where a crossing guard is required but the crossing guard is not provided by the local jurisdiction, the associated School Crossing and/or Reduce Speed School Zone shall be removed and the child access routing plan revised.

APPENDICES

Appendix A – Typical Applications

- **Figure A1**: Typical Intersection School Crosswalk Zone: Two-Way Stop Controlled
- **Figure A2**: Typical Intersection School Crosswalk Zone: Four-Way Stop Controlled
- **Figure A3**: Typical Intersection School Crosswalk Zone: Signal Controlled
- **Figure A4**: Typical Intersection School Crosswalk Zone: Roundabout Controlled
- **Figure A5**: Typical Midblock School Crosswalk Zone
- **Figure A6**: Typical Intersection Reduced Speed School Zone: Two-Way Stop Controlled
- **Figure A7**: Typical Midblock Reduced Speed School Zone
- **Figure A8**: Typical Intersection Reduced Speed School Zone: Four-Way Stop Controlled
- **Figure A9**: Typical Intersection Reduced Speed School Zone: Signal Controlled
- **Figure A10**: Typical Intersection Reduced Speed School Zone: Roundabout Controlled
- **Figure A11**: Typical Narrow School Route Zone
- **Figure A12**: Typical Abutting School Zone

Appendix B - School Zone Protection Flowcharts

- **Appendix B1**: Warrant for the Installation of a Reduced Speed School Zone
- **Appendix B2**: Requirements for Optional Installation of an Overhead School Speed Limit Assembly in a Reduced Speed School Zone
- **Appendix B3**: Requirements for Adult Crossing Guards in School Zones

Appendix C – Warrant: Reduced Speed School Zone

Appendix D – Utah Special School Zone Sign Layouts

Appendix E – School Zone Installation Checklist

Appendix F – Utah Department of Transportation Contact Information and Region Map

APPENDIX A

Typical Applications

FIGURE A1
TYPICAL INTERSECTION SCHOOL CROSSWALK ZONE: TWO-WAY STOP CONTROLLED

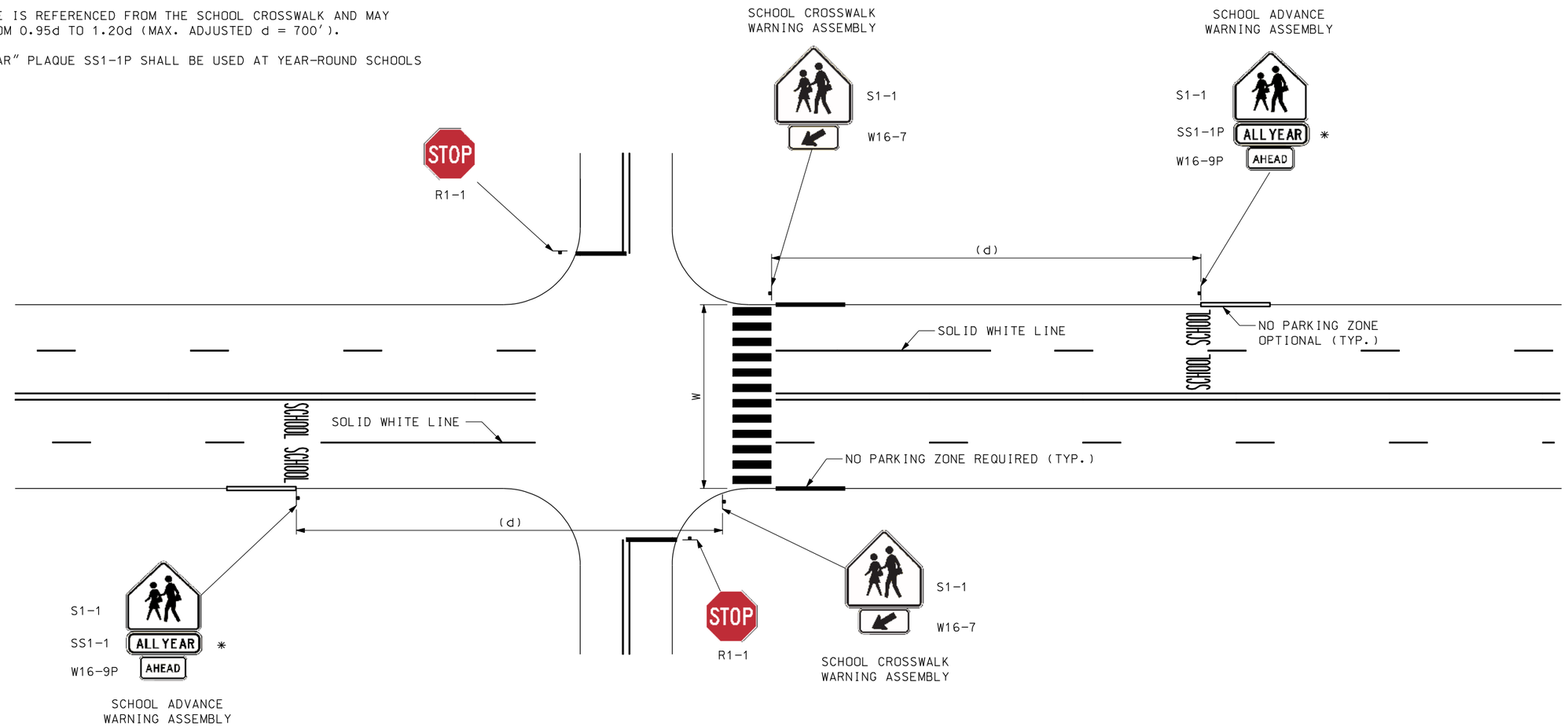
SIGNING AND STRIPING PLACEMENT

POSTED OR 85TH PERCENTILE SPEED (MPH)	SCHOOL ADVANCE (S1-1) (d)	NO PARKING ZONE LENGTH				MINIMUM SOLID WHITE LINE LENGTH
		AT X WALK OR SCHOOL ADVANCE	AFTER X WALK			
			W ≤ 50′	50′ < W < 70′	W ≥ 70′	
25	250′	60′	40′	25′	20′	150′
30	325′	85′	50′	35′	25′	150′
35	400′	115′	70′	50′	35′	200′
40	475′	150′	90′	65′	45′	250′
45	550′	190′	110′	80′	55′	250′
50	625′	230′	140′	100′	70′	250′

NOTES:

(d) DISTANCE IS REFERENCED FROM THE SCHOOL CROSSWALK AND MAY VARY FROM 0.95d TO 1.20d (MAX. ADJUSTED d = 700′).

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.



SIGNING AND STRIPING PLACEMENT

POSTED OR 85TH PERCENTILE SPEED (MPH)	SCHOOL ADVANCE (S1-1) (d)	NO PARKING ZONE LENGTH AT X WALK OR SCHOOL ADVANCE	NO PARKING ZONE LENGTH AFTER X WALK W ≤ 50′	NO PARKING ZONE LENGTH AFTER X WALK 50′ < W < 70′	NO PARKING ZONE LENGTH AFTER X WALK W ≥ 70′	MINIMUM SOLID WHITE LINE LENGTH
25	250′	60′	40′	25′	20′	150′
30	325′	85′	50′	35′	25′	150′
35	400′	115′	70′	50′	35′	200′
40	475′	150′	90′	65′	45′	250′
45	550′	190′	110′	80′	55′	250′
50	625′	230′	140′	100′	70′	250′

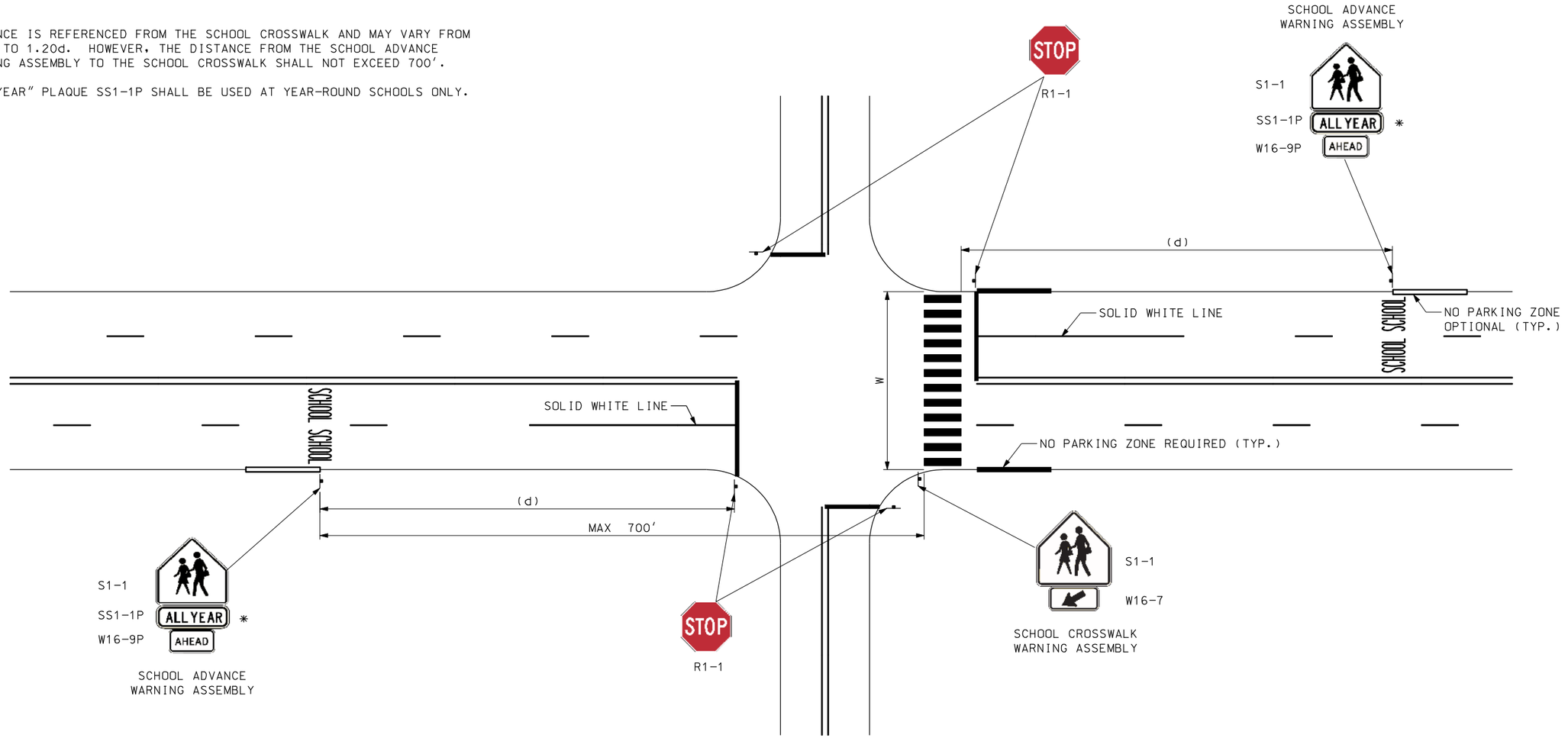
NOTES:

(d) DISTANCE IS REFERENCED FROM THE SCHOOL CROSSWALK AND MAY VARY FROM 0.95d TO 1.20d. HOWEVER, THE DISTANCE FROM THE SCHOOL ADVANCE WARNING ASSEMBLY TO THE SCHOOL CROSSWALK SHALL NOT EXCEED 700′.

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

FIGURE A2

TYPICAL INTERSECTION SCHOOL CROSSWALK ZONE: FOUR-WAY STOP CONTROLLED



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SIGNING AND STRIPING PLACEMENT

POSTED OR 85TH PERCENTILE SPEED (MPH)	SCHOOL ADVANCE (S1-1) (d)	NO PARKING ZONE LENGTH AT X WALK OR SCHOOL ADVANCE	NO PARKING ZONE LENGTH AFTER X WALK W ≤ 50′	NO PARKING ZONE LENGTH AFTER X WALK 50′ < W ≤ 70′	NO PARKING ZONE LENGTH AFTER X WALK W ≥ 70′	MINIMUM SOLID WHITE LINE LENGTH
25	250′	60′	40′	25′	20′	150′
30	325′	85′	50′	35′	25′	150′
35	400′	115′	70′	50′	35′	200′
40	475′	150′	90′	65′	45′	250′
45	550′	190′	110′	80′	55′	250′
50	625′	230′	140′	100′	70′	250′

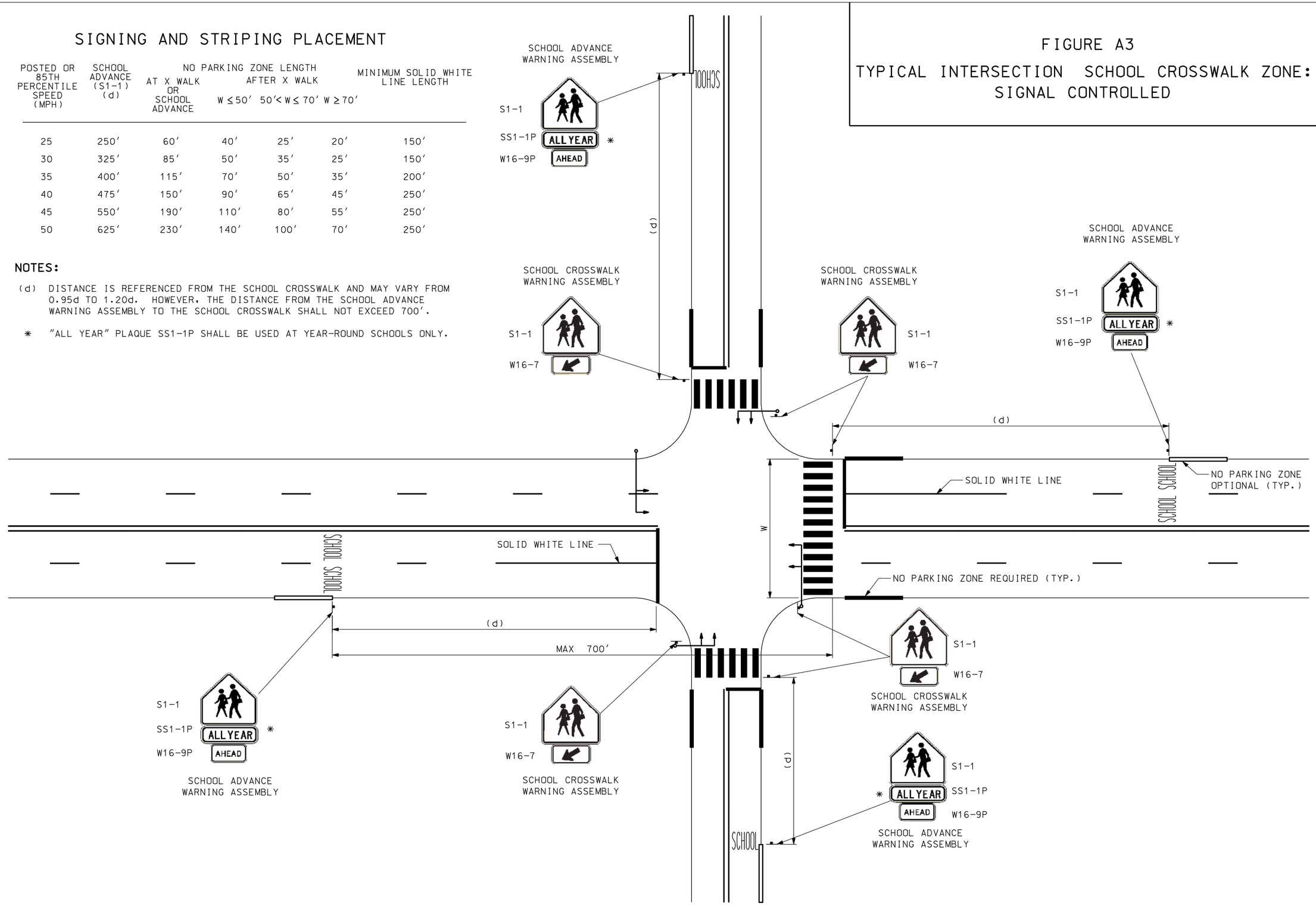
NOTES:

(d) DISTANCE IS REFERENCED FROM THE SCHOOL CROSSWALK AND MAY VARY FROM 0.95d TO 1.20d. HOWEVER, THE DISTANCE FROM THE SCHOOL ADVANCE WARNING ASSEMBLY TO THE SCHOOL CROSSWALK SHALL NOT EXCEED 700′.

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

FIGURE A3

TYPICAL INTERSECTION SCHOOL CROSSWALK ZONE: SIGNAL CONTROLLED



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SIGNING AND STRIPING PLACEMENT

POSTED OR 85TH PERCENTILE SPEED (MPH)	SCHOOL ADVANCE (S1-1) (d)	NO PARKING ZONE LENGTH AT SCHOOL CROSSWALK OR SCHOOL ADVANCE	NO PARKING ZONE LENGTH AFTER X WALK W ≤ 50′	NO PARKING ZONE LENGTH AFTER X WALK 50′< W < 70′
25	250′	60′	40′	25′
30	325′	85′	50′	35′
35	400′	115′	70′	50′
40	475′	150′	90′	65′
45	550′	190′	110′	80′
50	625′	230′	140′	100′

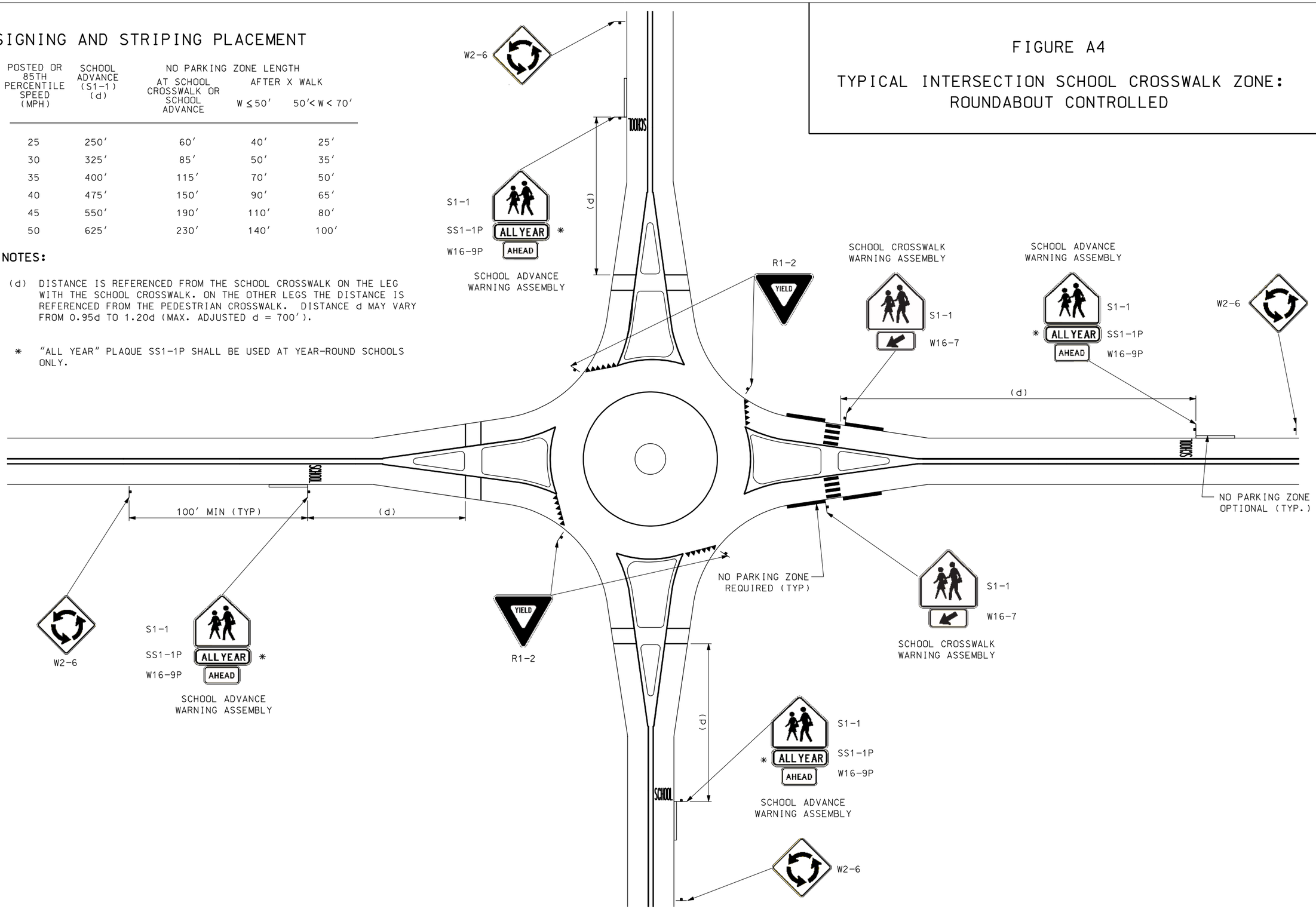
NOTES:

(d) DISTANCE IS REFERENCED FROM THE SCHOOL CROSSWALK ON THE LEG WITH THE SCHOOL CROSSWALK. ON THE OTHER LEGS THE DISTANCE IS REFERENCED FROM THE PEDESTRIAN CROSSWALK. DISTANCE d MAY VARY FROM 0.95d TO 1.20d (MAX. ADJUSTED d = 700′).

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

FIGURE A4

TYPICAL INTERSECTION SCHOOL CROSSWALK ZONE: ROUNDABOUT CONTROLLED



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SIGNING AND STRIPING PLACEMENT

POSTED OR 85TH PERCENTILE SPEED (MPH)	SCHOOL ADVANCE (S1-1) (d)	NO PARKING ZONE LENGTH AT X WALK OR SCHOOL ADVANCE	NO PARKING ZONE LENGTH AFTER X WALK W ≤ 50′	NO PARKING ZONE LENGTH AFTER X WALK 50′ < W < 70′	NO PARKING ZONE LENGTH AFTER X WALK W ≥ 70′	MINIMUM SOLID WHITE LINE LENGTH
25	250′	60′	40′	25′	20′	150′
30	325′	85′	50′	35′	25′	150′
35	400′	115′	70′	50′	35′	200′
40	475′	150′	90′	65′	45′	250′
45	550′	190′	110′	80′	55′	250′
50	625′	230′	140′	100′	70′	250′

NOTES:

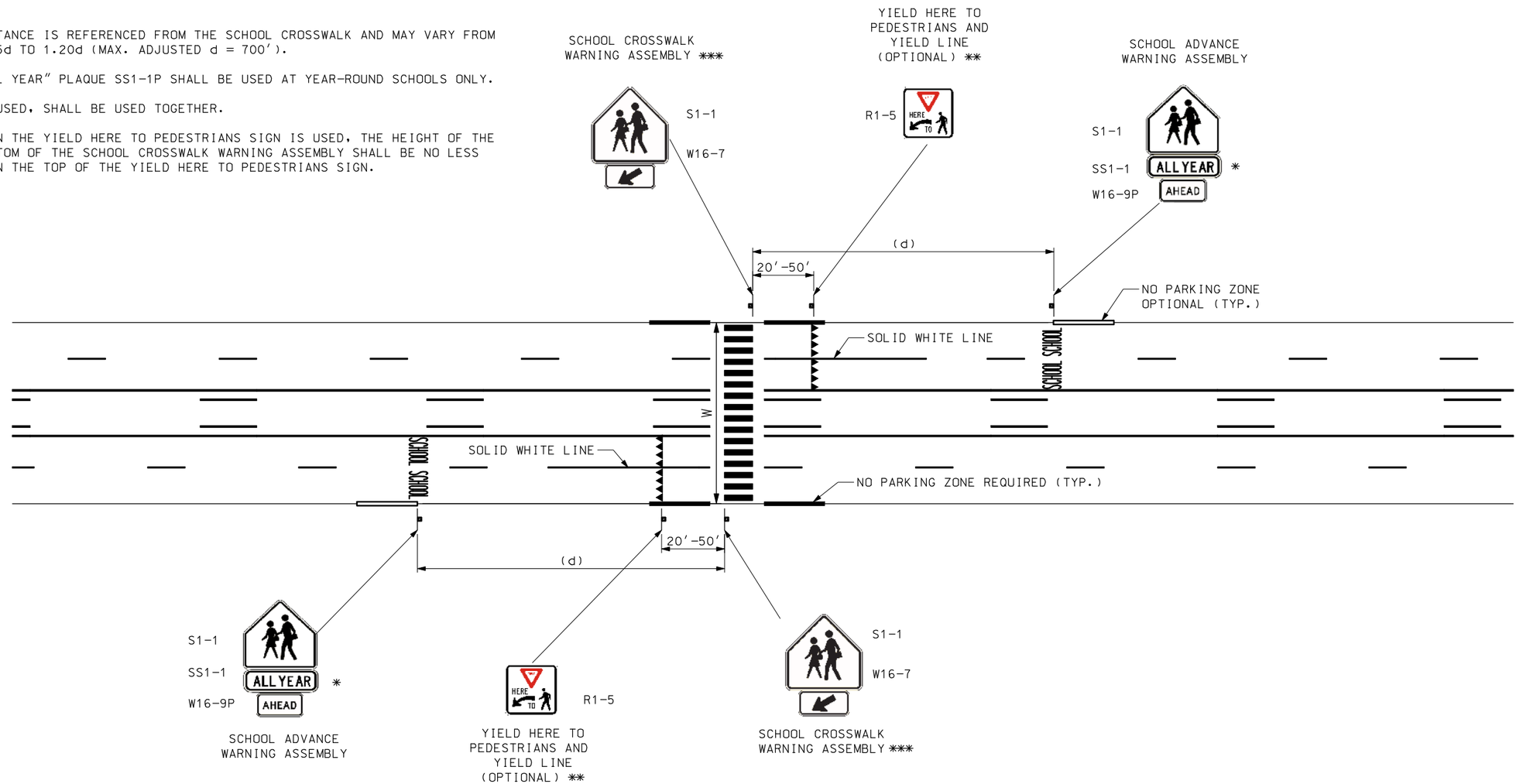
(d) DISTANCE IS REFERENCED FROM THE SCHOOL CROSSWALK AND MAY VARY FROM 0.95d TO 1.20d (MAX. ADJUSTED d = 700′).

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

** IF USED, SHALL BE USED TOGETHER.

*** WHEN THE YIELD HERE TO PEDESTRIANS SIGN IS USED, THE HEIGHT OF THE BOTTOM OF THE SCHOOL CROSSWALK WARNING ASSEMBLY SHALL BE NO LESS THAN THE TOP OF THE YIELD HERE TO PEDESTRIANS SIGN.

FIGURE A5
TYPICAL MIDBLOCK SCHOOL CROSSWALK ZONE



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SIGNING AND STRIPING PLACEMENT

POSTED OR 85 TH PERCENTILE SPEED (MPH)	SCHOOL SPEED LIMIT (S5-1) (d1)	SCHOOL ADVANCE (S1-1) (d2)	SCHOOL REDUCED SPEED AHEAD (S4-5) (d3)	NO PARKING ZONE LENGTH AT X WALK, SCHOOL ADVANCE, OR S5-1	NO PARKING ZONE LENGTH AFTER X WALK W ≤ 50′	NO PARKING ZONE LENGTH AFTER X WALK 50′ < W < 70′	NO PARKING ZONE LENGTH AFTER X WALK W ≥ 70′	MINIMUN SOLID WHITE LINE LENGTH
25	150′	100′	100′	60′	40′	25′	20′	150′
30	150′	100′	130′	85′	50′	35′	25′	150′
35	200′	175′	215′	115′	70′	50′	35′	200′
40	250′	250′	340′	150′	90′	65′	45′	250′
45	250′	300′	500′	190′	110′	80′	55′	250′
50	250′	400′	640′	230′	140′	100′	70′	250′

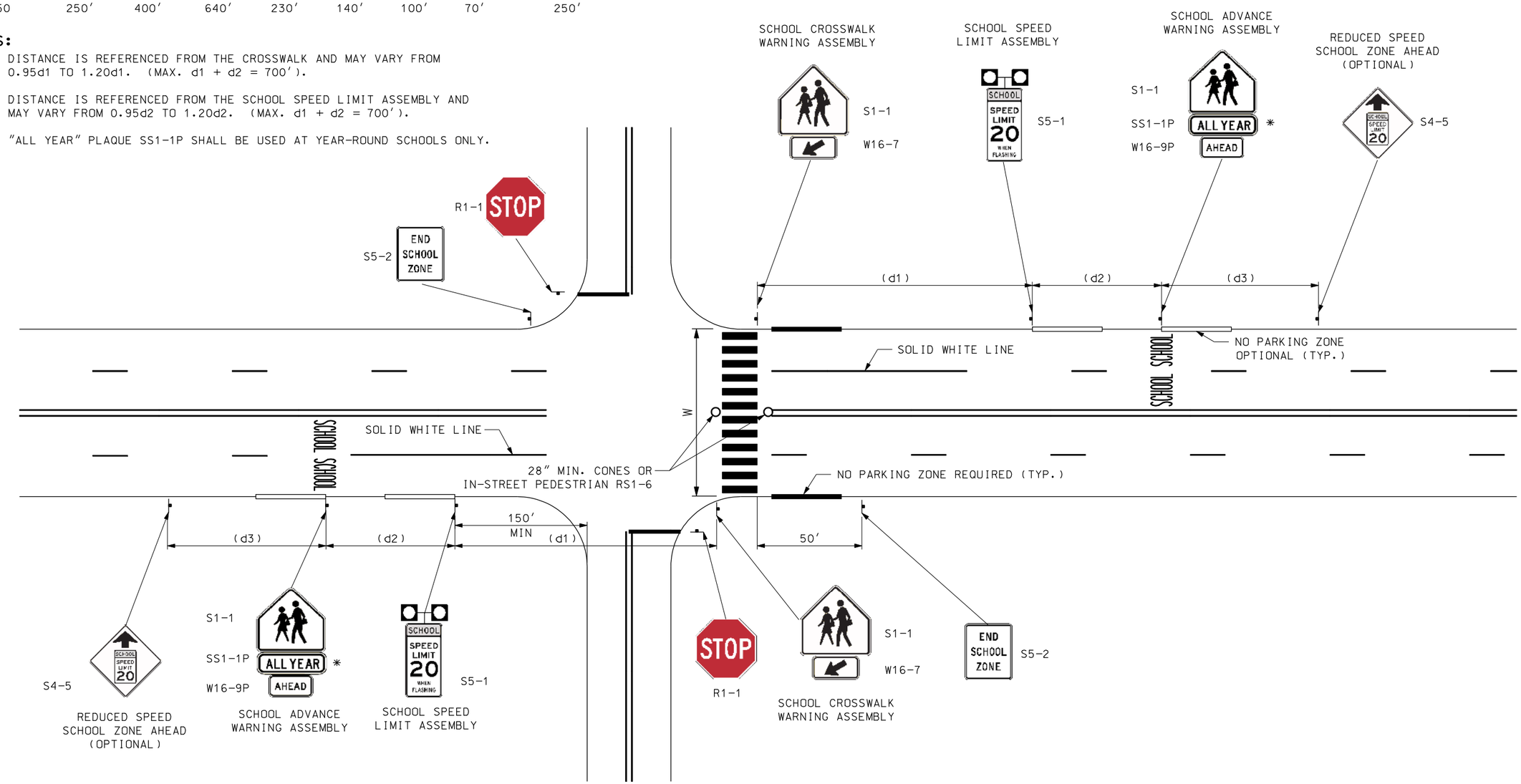
NOTES:

(d1) DISTANCE IS REFERENCED FROM THE CROSSWALK AND MAY VARY FROM 0.95d1 TO 1.20d1. (MAX. d1 + d2 = 700′).

(d2) DISTANCE IS REFERENCED FROM THE SCHOOL SPEED LIMIT ASSEMBLY AND MAY VARY FROM 0.95d2 TO 1.20d2. (MAX. d1 + d2 = 700′).

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

FIGURE A6
TYPICAL INTERSECTION REDUCED SPEED SCHOOL ZONE: TWO-WAY STOP CONTROLLED



SIGNING AND STRIPING PLACEMENT

POSTED OR 85 TH PERCENTILE SPEED (MPH)	SCHOOL SPEED LIMIT (S5-1) (d1)	SCHOOL ADVANCE (S1-1) (d2)	SCHOOL REDUCED SPEED AHEAD (S4-5) (d3)	NO PARKING ZONE LENGTH AT X WALK, SCHOOL ADVANCE, OR S5-1	NO PARKING ZONE LENGTH AFTER X WALK W ≤ 50′	NO PARKING ZONE LENGTH AFTER X WALK 50′ < W < 70′	NO PARKING ZONE LENGTH AFTER X WALK W ≥ 70′	MINIMUN SOLID WHITE LINE LENGTH
25	150′	100′	100′	60′	40′	25′	20′	150′
30	150′	100′	130′	85′	50′	35′	25′	150′
35	200′	175′	215′	115′	70′	50′	35′	200′
40	250′	250′	340′	150′	90′	65′	45′	250′
45	250′	300′	500′	190′	110′	80′	55′	250′
50	250′	400′	640′	230′	140′	100′	70′	250′

NOTES:

(d1) DISTANCE IS REFERENCED FROM THE CROSSWALK AND MAY VARY FROM 0.95d1 TO 1.20d1. (MAX. d1 + d2 = 700′).

(d2) DISTANCE IS REFERENCED FROM THE SCHOOL SPEED LIMIT ASSEMBLY AND MAY VARY FROM 0.95d2 TO 1.20d2. (MAX. d1 + d2 = 700′).

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

** IF USED, SHALL BE USED TOGETHER.

*** WHEN THE YIELD HERE TO PEDESTRIANS SIGN IS USED, THE HEIGHT OF THE BOTTOM OF THE SCHOOL CROSSWALK WARNING ASSEMBLY SHALL BE NO LESS THAN THE TOP OF THE YIELD HERE TO PEDESTRIANS SIGN.

FIGURE A7

TYPICAL MIDBLOCK REDUCED SPEED SCHOOL ZONE

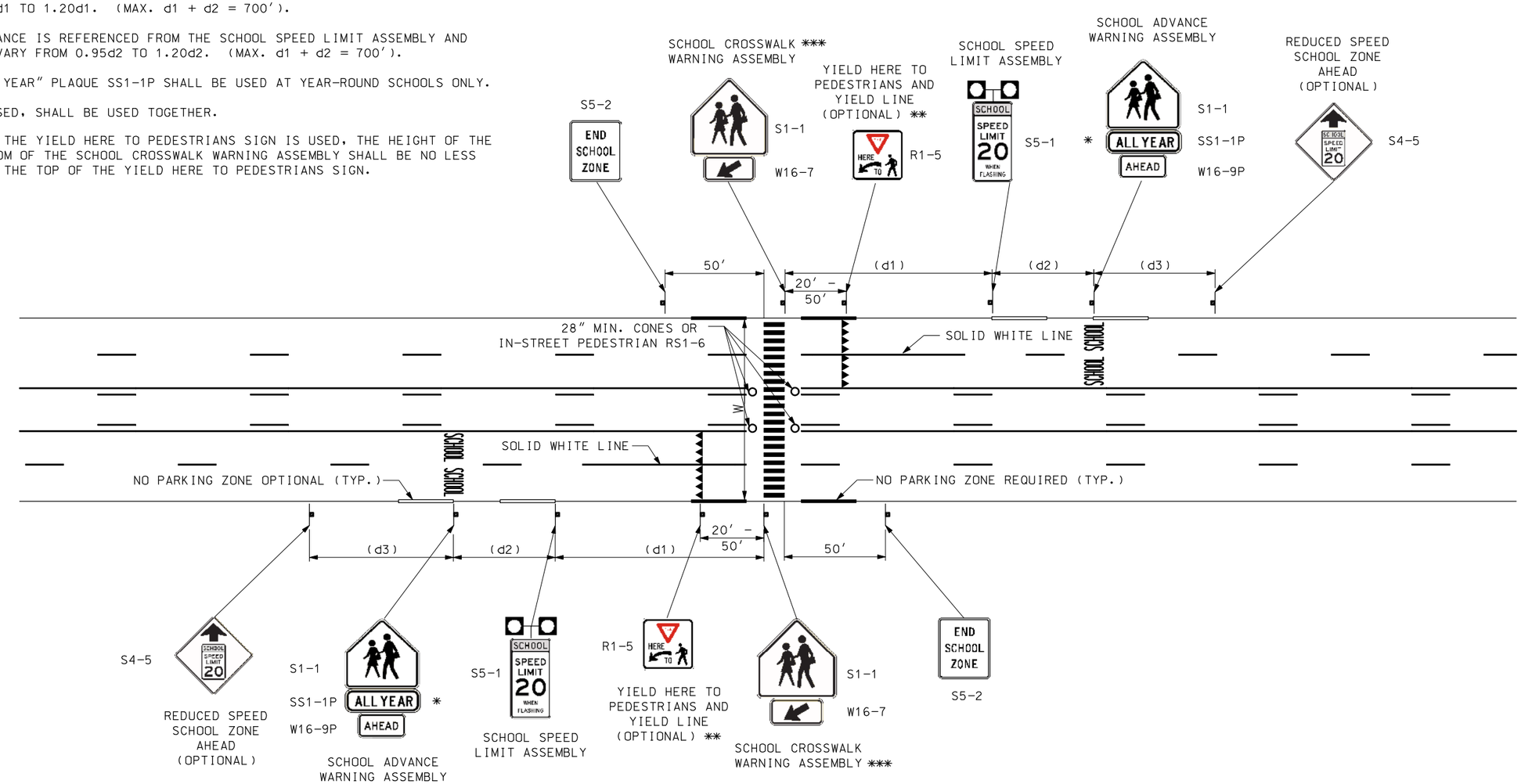


FIGURE A8

TYPICAL INTERSECTION REDUCED SPEED SCHOOL ZONE: FOUR-WAY STOP CONTROLLED

(SEE SECTION 7A.03 FOR SPECIAL USE CONDITIONS)

SIGNING AND STRIPING PLACEMENT

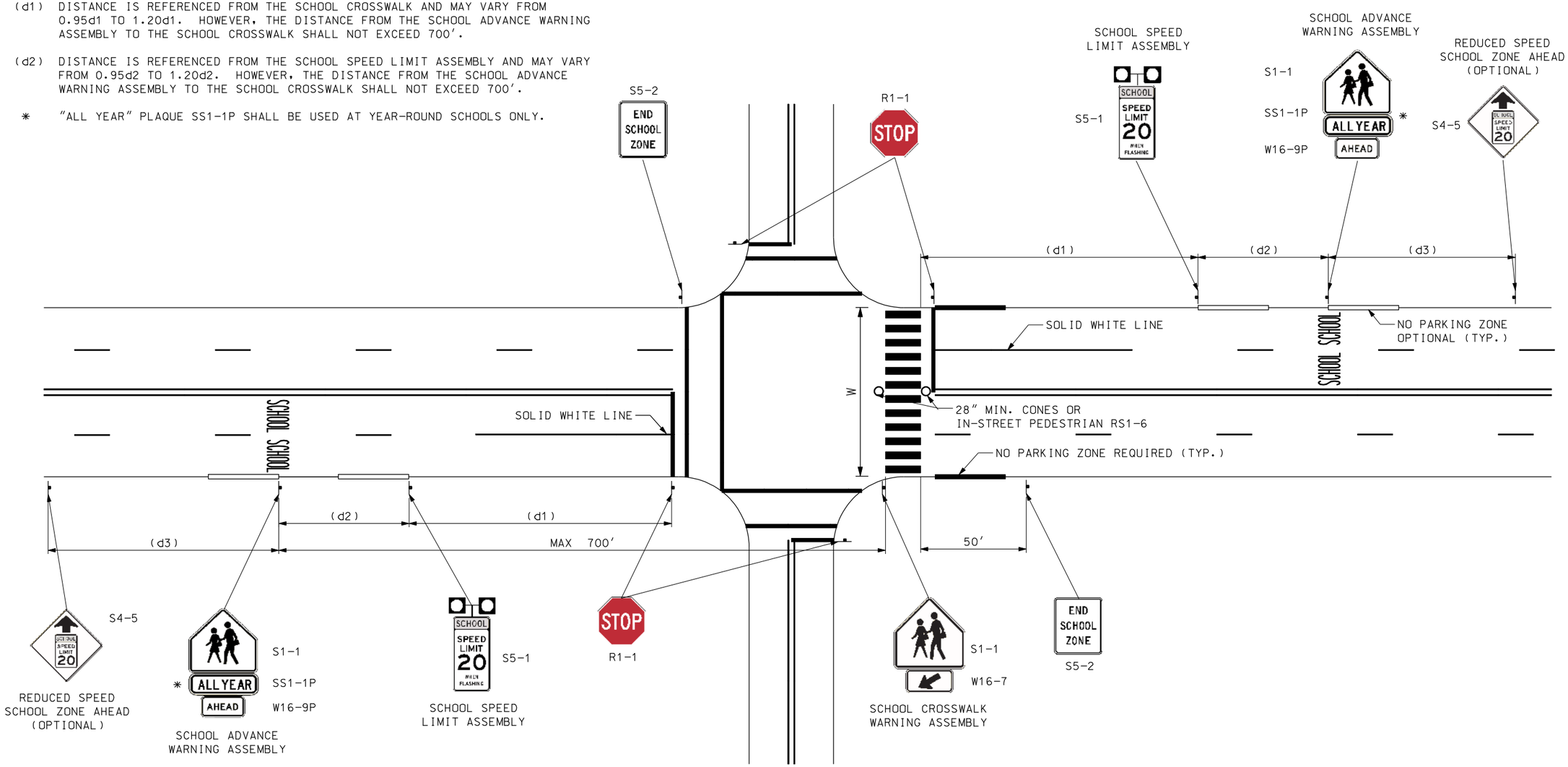
POSTED OR 85 TH PERCENTILE SPEED (MPH)	SCHOOL SPEED LIMIT (S5-1) (d1)	SCHOOL ADVANCE (S1-1) (d2)	SCHOOL REDUCED SPEED AHEAD (S4-5) (d3)	NO PARKING ZONE LENGTH AT X WALK, SCHOOL ADVANCE, OR S5-1	NO PARKING ZONE LENGTH AFTER X WALK W ≤ 50′	NO PARKING ZONE LENGTH AFTER X WALK 50′ < W < 70′	NO PARKING ZONE LENGTH AFTER X WALK W ≥ 70′	MINIMUN SOLID WHITE LINE LENGTH
25	150′	100′	100′	60′	40′	25′	20′	150′
30	150′	100′	130′	85′	50′	35′	25′	150′
35	200′	175′	215′	115′	70′	50′	35′	200′
40	250′	250′	340′	150′	90′	65′	45′	250′
45	250′	300′	500′	190′	110′	80′	55′	250′
50	250′	400′	640′	230′	140′	100′	70′	250′

NOTES:

(d1) DISTANCE IS REFERENCED FROM THE SCHOOL CROSSWALK AND MAY VARY FROM 0.95d1 TO 1.20d1. HOWEVER, THE DISTANCE FROM THE SCHOOL ADVANCE WARNING ASSEMBLY TO THE SCHOOL CROSSWALK SHALL NOT EXCEED 700′.

(d2) DISTANCE IS REFERENCED FROM THE SCHOOL SPEED LIMIT ASSEMBLY AND MAY VARY FROM 0.95d2 TO 1.20d2. HOWEVER, THE DISTANCE FROM THE SCHOOL ADVANCE WARNING ASSEMBLY TO THE SCHOOL CROSSWALK SHALL NOT EXCEED 700′.

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.



SIGNING AND STRIPING PLACEMENT

POSTED OR SPEED 85TH PERCENTILE (MPH)	SCHOOL SPEED LIMIT (S5-1) (d1) **	SCHOOL ADVANCE (S1-1) (d2)	SCHOOL REDUCED SPEED AHEAD (S4-5) (d3)	NO PARKING ZONE LENGTH AT X WALK, SCHOOL ADVANCED, OR S5-1	NO PARKING ZONE LENGTH AFTER X WALK W ≤ 50′	NO PARKING ZONE LENGTH AFTER X WALK 50′ < W < 70′	NO PARKING ZONE LENGTH AFTER X WALK W ≥ 70′	MINIMUM SOLID WHITE LINE LENGTH
25	150′	100′	100′	60′	40′	25′	20′	150′
30	150′	100′	130′	85′	50′	35′	25′	150′
35	200′	175′	215′	115′	70′	50′	35′	200′
40	250′	250′	340′	150′	90′	65′	45′	250′
45	250′	300′	500′	190′	110′	80′	55′	250′
50	250′	400′	640′	230′	140′	100′	70′	250′

NOTES:

(d1) DISTANCE IS REFERENCED FROM THE SCHOOL CROSSWALK AND MAY VARY FROM 0.95d1 TO 1.20d1. HOWEVER, THE DISTANCE FROM THE SCHOOL ADVANCE WARNING ASSEMBLY TO THE SCHOOL CROSSWALK SHALL NOT EXCEED 700′.

(d2) DISTANCE IS REFERENCED FROM THE SCHOOL SPEED LIMIT SIGN AND MAY VARY FROM 0.95d2 TO 1.20d2. HOWEVER, THE DISTANCE FROM THE SCHOOL ADVANCE WARNING ASSEMBLY TO THE SCHOOL CROSSWALK SHALL NOT EXCEED 700′.

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

** FOR AN OVERHEAD SCHOOL SPEED LIMIT ASSEMBLY ALLOWED TO REMAIN AT A TRAFFIC SIGNAL PER SECTION 7A.03, DECISION SIGHT DISTANCE SHALL BE PROVIDED FOR THE SIGNAL. (SEE SECTION 7B.11)

FIGURE A9

TYPICAL INTERSECTION REDUCED SPEED SCHOOL ZONE: SIGNAL CONTROLLED

(SEE SECTION 7A.03 FOR SPECIAL USE CONDITIONS)

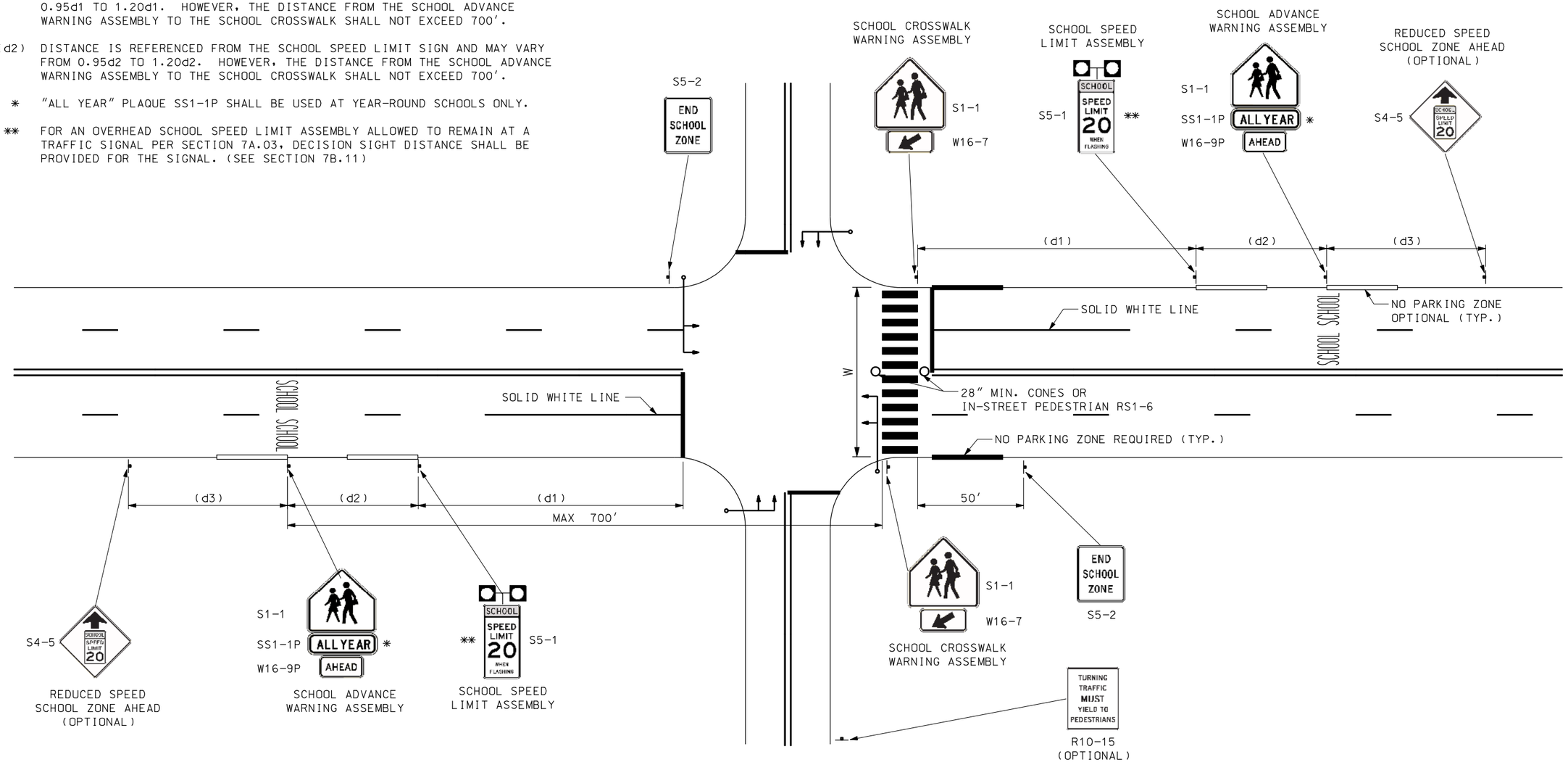


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FIGURE A10
TYPICAL INTERSECTION REDUCED SPEED SCHOOL ZONE: ROUNDABOUT CONTROLLED

(SEE SECTION 7A.03 FOR SPECIAL USE CONDITIONS)

SIGNING AND STRIPING PLACEMENT

POSTED OR 85 TH PERCENTILE SPEED (MPH)	SCHOOL ADVANCE (S1-1) (d)	SCHOOL SPEED LIMIT (S5-1) (d1)	SCHOOL ADVANCE (S1-1) (d2)	NO PARKING ZONE LENGTH AT X WALK, SCHOOL ADVANCE, OR S5-1	NO PARKING ZONE LENGTH AFTER X WALK W ≤ 50′	NO PARKING ZONE LENGTH AFTER X WALK 50′ < W < 70′
25	250′	150′	100′	60′	40′	25′
30	325′	150′	100′	85′	50′	35′
35	400′	200′	175′	115′	70′	50′
40	475′	250′	250′	150′	90′	65′
45	550′	250′	300′	190′	110′	80′
50	625′	250′	400′	230′	140′	100′

NOTES:

(d) DISTANCE IS REFERENCED FROM THE PEDESTRIAN CROSSWALK AND MAY VARY FROM 0.95d TO 1.20d. HOWEVER, THE DISTANCE FROM THE SCHOOL ADVANCE WARNING ASSEMBLY TO THE SCHOOL CROSSWALK SHALL NOT EXCEED 700′.

(d1) DISTANCE IS REFERENCED FROM THE SCHOOL CROSSWALK AND MAY VARY FROM 0.95d1 TO 1.20d1. HOWEVER, THE DISTANCE FROM THE SCHOOL ADVANCE WARNING ASSEMBLY TO THE SCHOOL CROSSWALK SHALL NOT EXCEED 700′.

(d2) DISTANCE IS REFERENCED FROM THE SCHOOL SPEED LIMIT SIGN AND MAY VARY FROM 0.95d2 TO 1.20d2. HOWEVER, THE DISTANCE FROM THE SCHOOL ADVANCE WARNING ASSEMBLY TO THE SCHOOL CROSSWALK SHALL NOT EXCEED 700′.

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

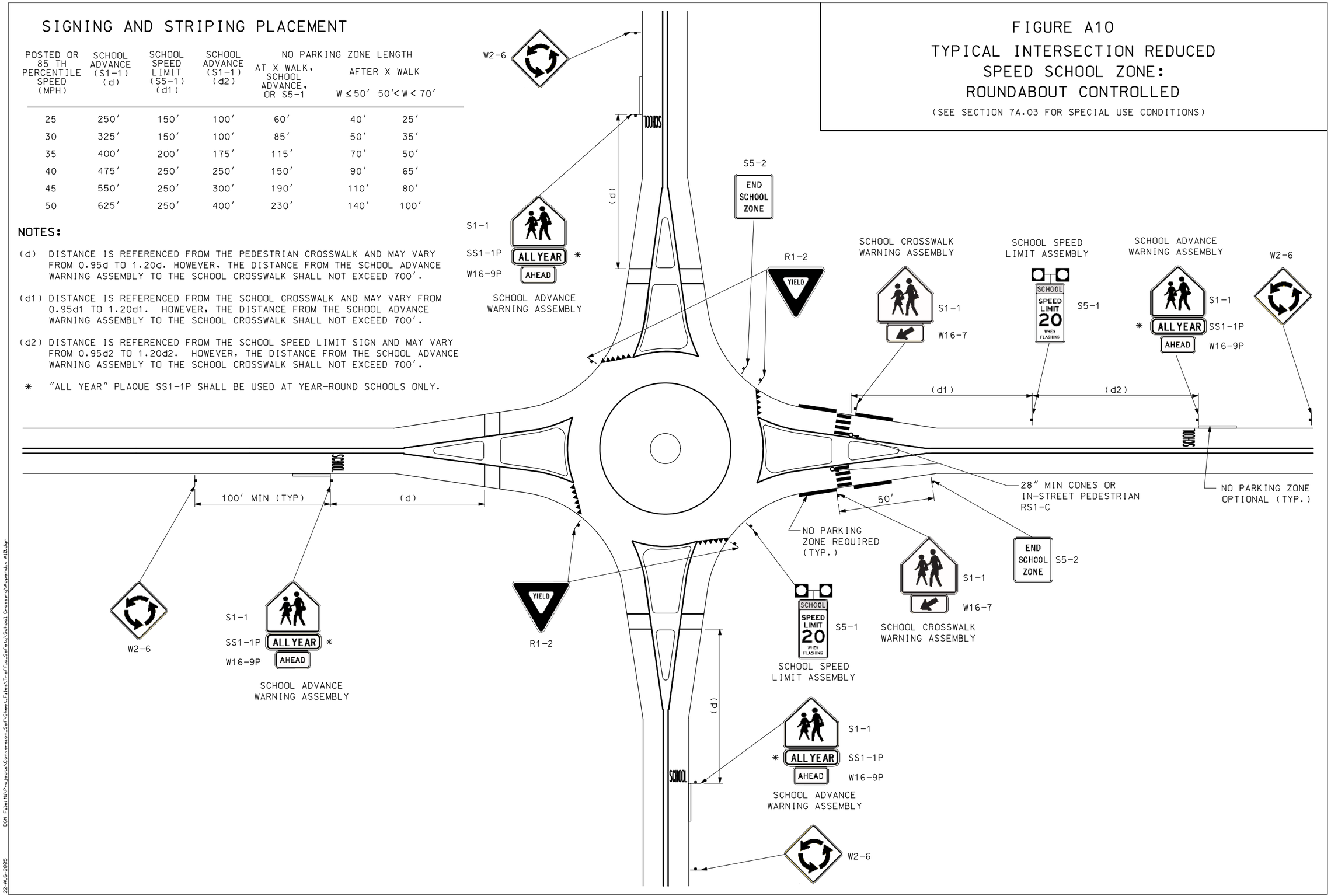

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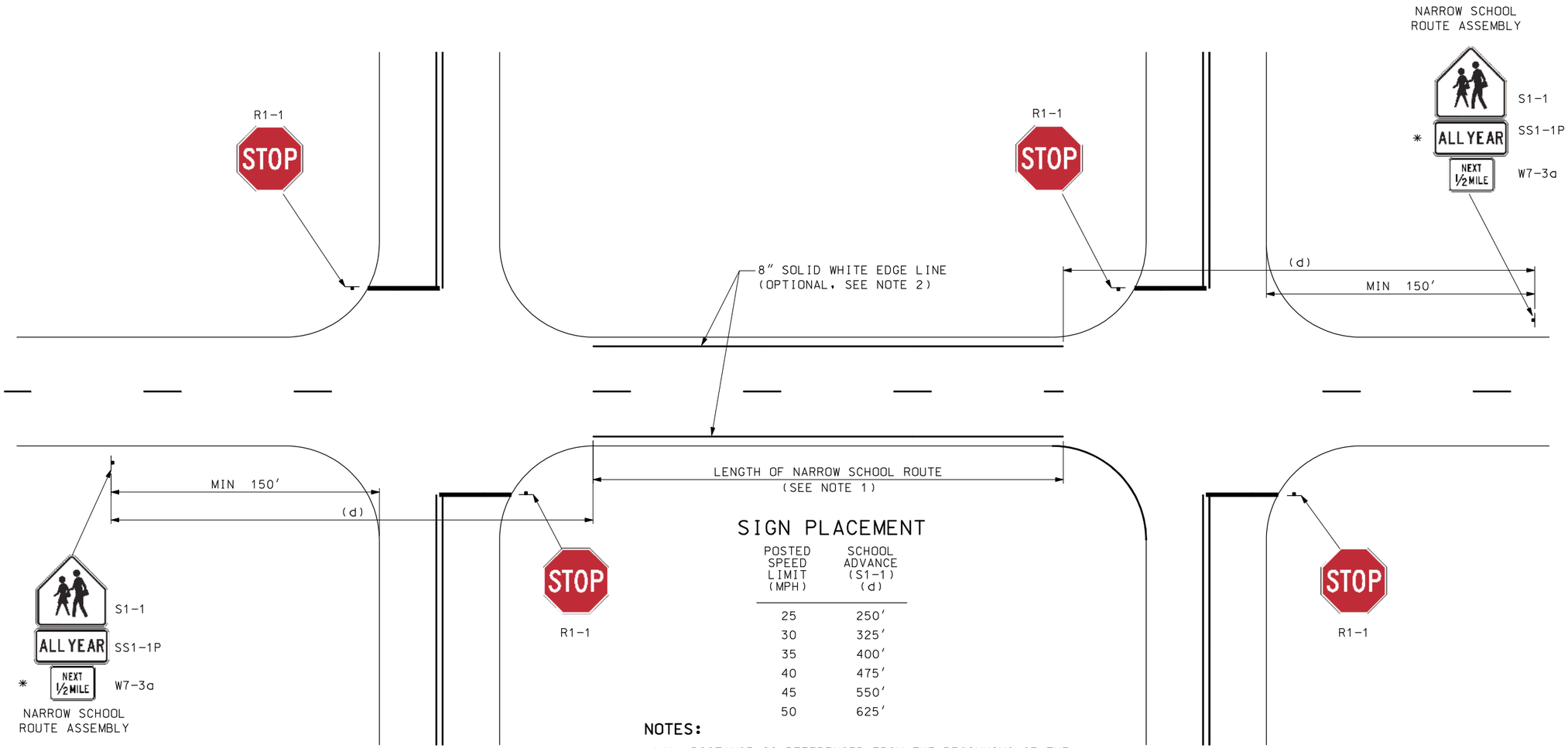
FIGURE A11
TYPICAL NARROW SCHOOL ROUTE ZONE



SIGN PLACEMENT

POSTED SPEED LIMIT (MPH)	SCHOOL ADVANCE (S1-1) (d)
25	250'
30	325'
35	400'
40	475'
45	550'
50	625'

NOTES:

(d) DISTANCE IS REFERENCED FROM THE BEGINNING OF THE NARROW SCHOOL ROUTE AND MAY VARY FROM 0.95d TO 1.20d.

(1) THE NARROW SCHOOL ROUTE SHALL NOT BE LONGER THAN 1 MILE IN URBAN AREAS AND 2 MILES IN RURAL AREAS.

(2) ONLY THE SIDE(S) WHICH HAVE SCHOOL CHILDREN WALKING IN A CHILD ACCESS ROUTING PLAN MAY BE SIGNED AND HAVE THE 8 INCH SOLID WHITE STRIPE.

(3) SIGNS SHALL BE SPACED NO CLOSER TOGETHER THAN 1/4 MILE ALONG THE ROUTE IN URBAN AREAS AND 1/2 MILE IN RURAL AREAS.

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

SIGNING AND STRIPING PLACEMENT

POSTED OR 85TH PERCENTILE SPEED (MPH)	SCHOOL ADVANCE (S1-1) (d)	NO PARKING ZONE LENGTH AT SCHOOL ADVANCE
25	250′	60′
30	325′	85′
35	400′	115′
40	475′	150′
45	550′	190′
50	625′	230′

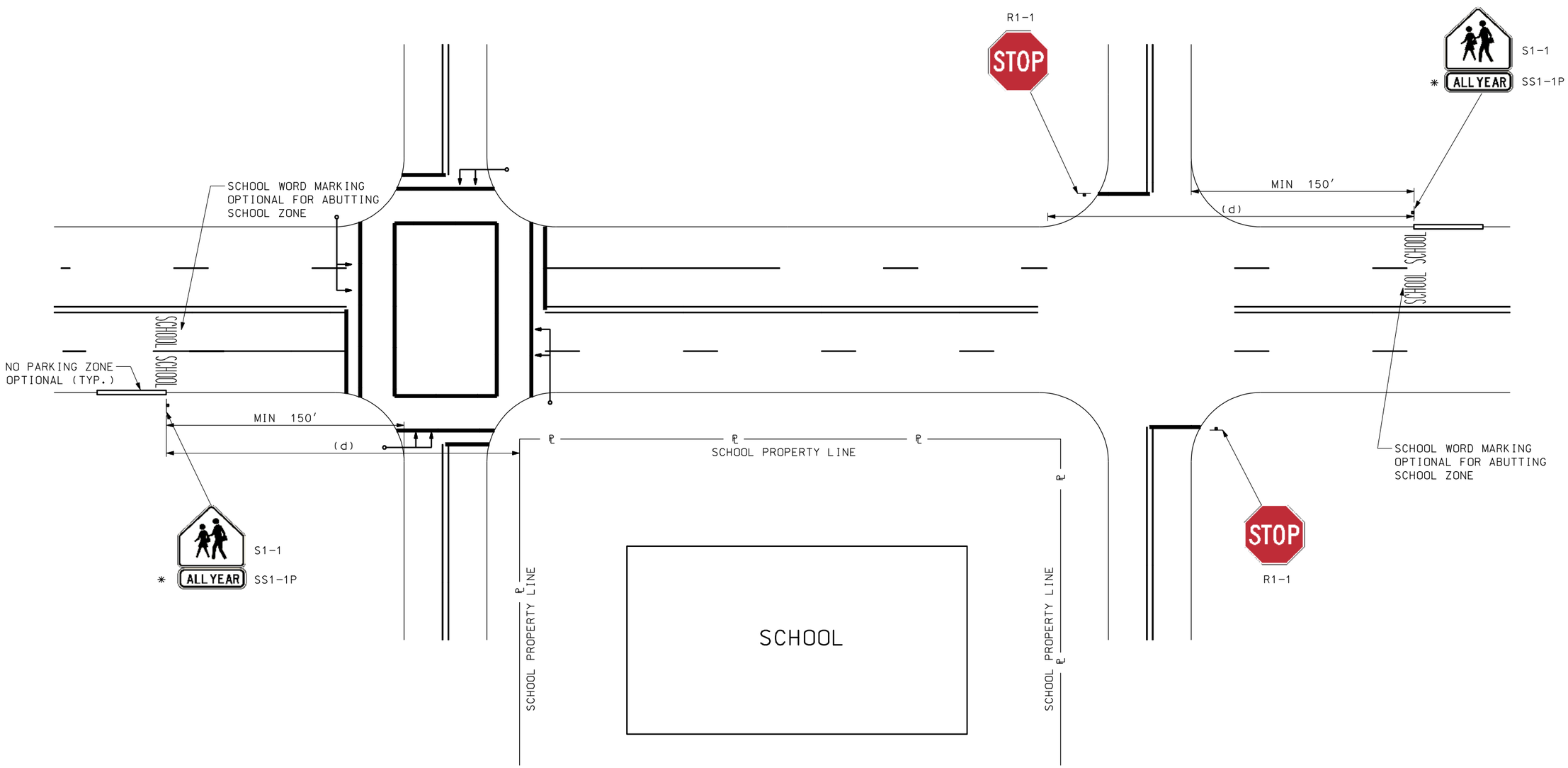
NOTES:

(d) DISTANCE IS REFERENCED FROM THE SCHOOL PROPERTY LINE AND MAY VARY FROM 0.95d TO 1.20d (MAX. ADJUSTED d = 700′).

* "ALL YEAR" PLAQUE SS1-1P SHALL BE USED AT YEAR-ROUND SCHOOLS ONLY.

FIGURE A12

TYPICAL ABUTTING SCHOOL ZONE



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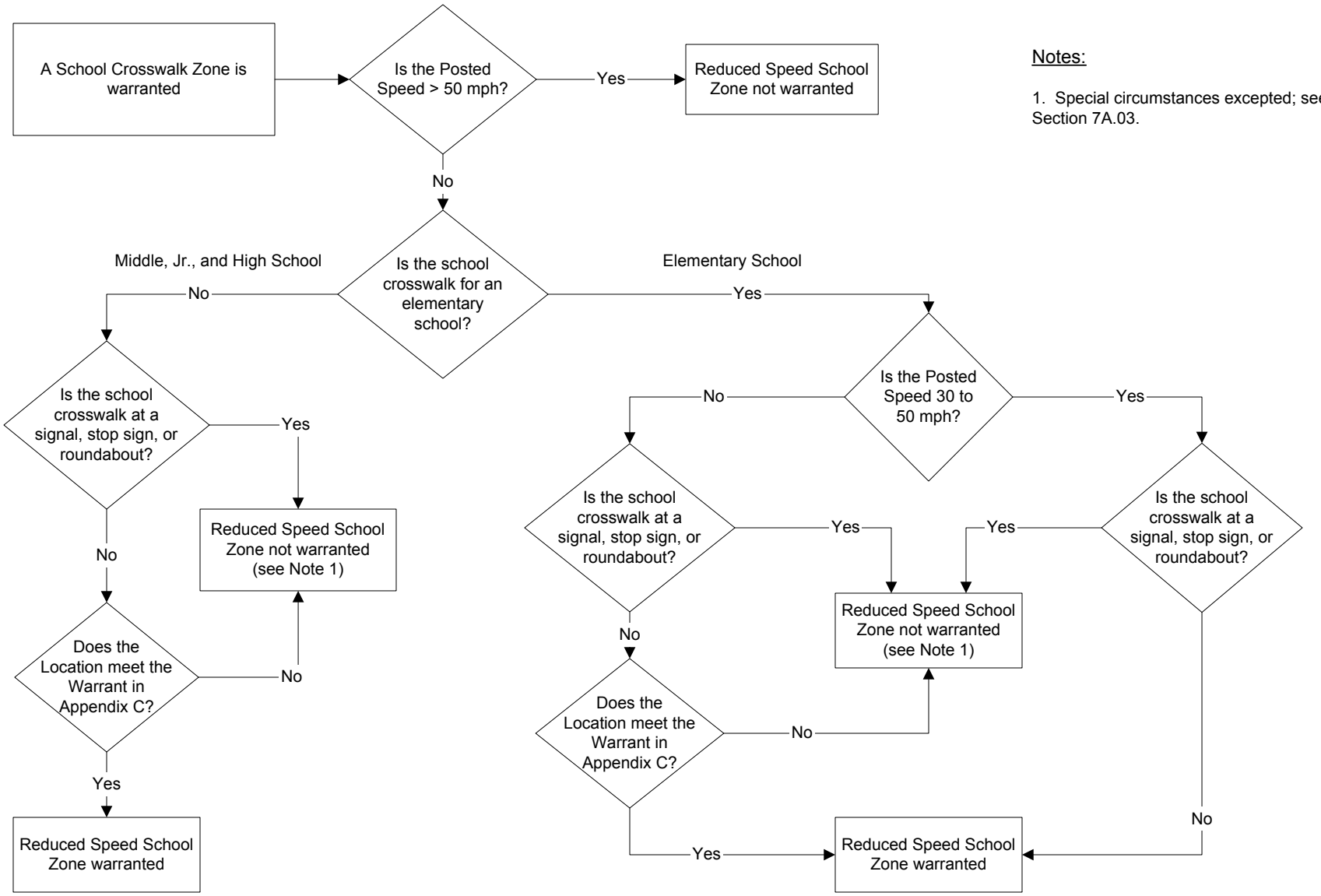
APPENDIX B

School Zone Protection Flowcharts

Appendix B1

Warrant for the installation of a Reduced Speed School Zone

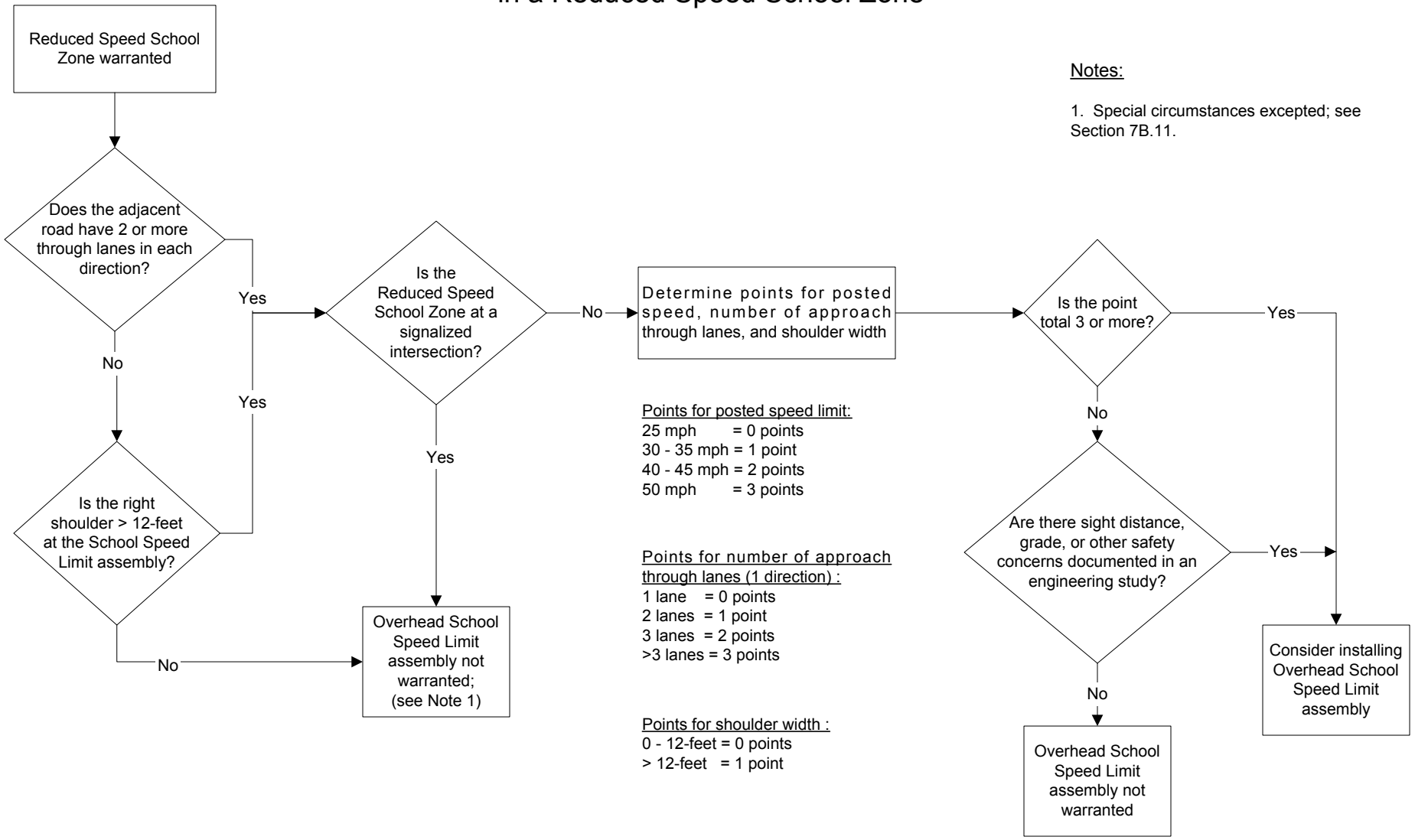


Notes:

1. Special circumstances excepted; see Section 7A.03.

Appendix B2

Requirements for Consideration of Optional Installation of Overhead School Speed Limit Assembly in a Reduced Speed School Zone

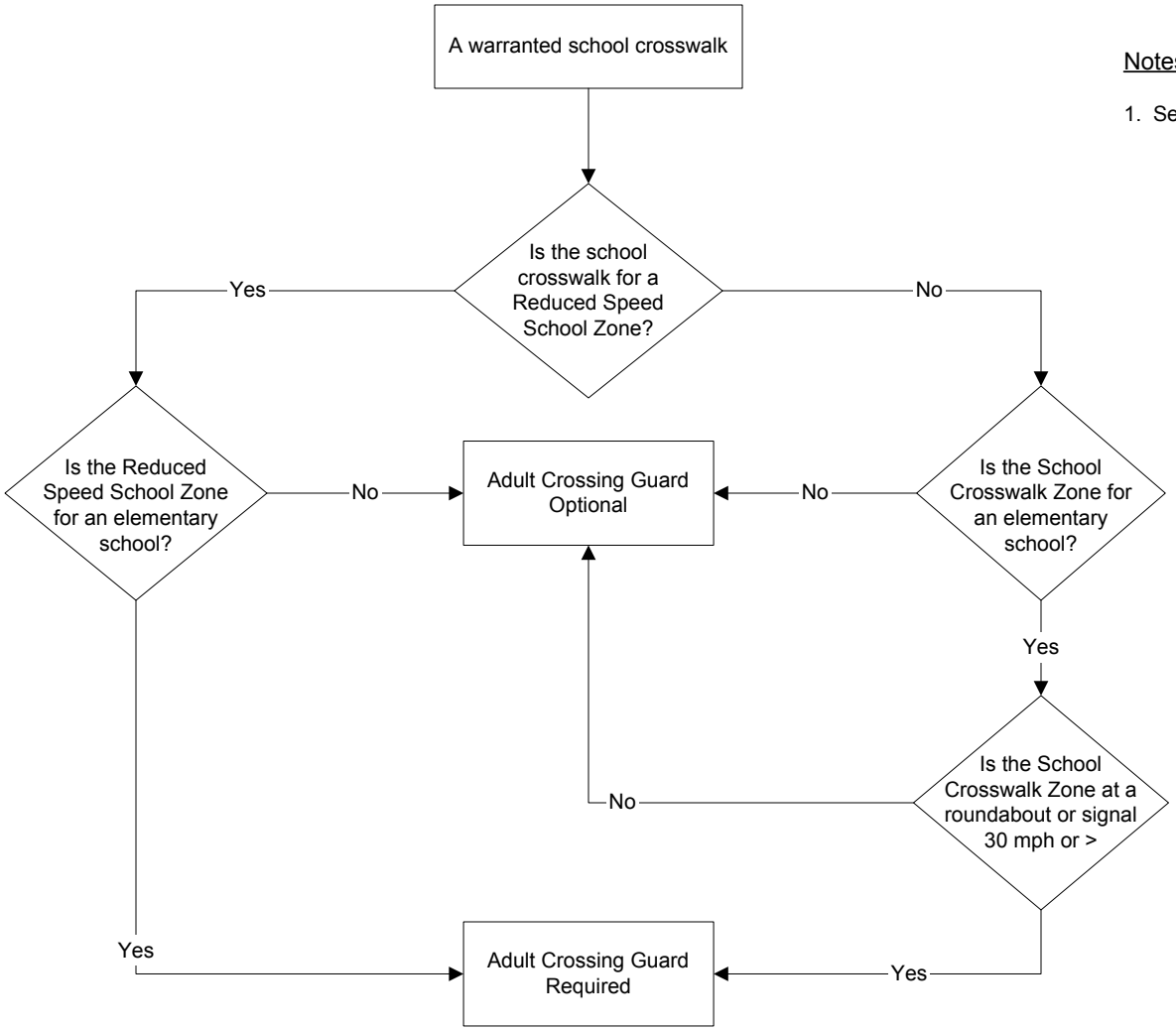


Notes:

1. Special circumstances excepted; see Section 7B.11.

Appendix B3

Requirements for Adult Crossing Guards in School Zones



Notes:

1. See Section 7E.02 for further information.

APPENDIX C

Warrant: Reduced Speed School Zone

WARRANT:
REDUCED SPEED SCHOOL ZONE

A Reduced Speed School Zone **shall not** be installed under the following conditions:

1. The school pedestrian volume is 10 or less;
2. The ADT on the roadway is less than 500 and the hourly volume during the Evaluation Period is less than 50;
3. The posted approach speed exceeds 50 mph; and,
4. The school crosswalk is at a roundabout, traffic signal, or STOP sign (except as allowed in 7A.03).

A Reduced Speed School Zone should not be installed when the Stopping Sight Distance for the school crosswalk is less than the minimum defined in AASHTO's most recent edition of "A Policy on Geometric Design of Highways and Streets."

Minimum points required for a Reduced Speed School Zone is 16 in an urban area, or 12 for an isolated rural community of under 10,000 population.

CATEGORIES

Average Time Between Useable Gaps	Maximum 10 Points
School Pedestrian Volume	Maximum 10 Points
85th Percentile Approach Speed	Maximum 5 Points
Average Demand Per Gap	Maximum 8 Points

DEFINITIONS:

1. **School Pedestrian Volume** - Includes all children between ages 5 and 18 that use the school crossing.

2. **Evaluation Period (EP)** - From forty-five (45) minutes before school starts in the morning until fifteen (15) minutes after school starts or from fifteen (15) minutes before school ends until forty-five (45) minutes after school ends.

3. **Minimum Usable Gap Time (MUGT)** - The minimum gap in traffic required for a single or group of school pedestrians to safely cross a given street width, determined as follows:

$$MUGT = \frac{W}{3.0} + 5.0 = \text{crossing time in seconds}$$

where:
W = pavement width in feet
3.0 = juvenile pedestrian walking speed in feet/second
5.0 = perception, reaction, and clearance time in seconds

4. **Total Usable Gap (G) -** The summation of Usable Gaps during the Evaluation Period, measured in seconds. A Usable Gap is any gap in traffic equal to or greater than the Minimum Usable Gap Time (MUGT).

5. **Maximum Number of Usable Gaps (MNUG) -** Ratio of Total Usable Gap Time to Minimum Usable Gap Time during the Evaluation Period.

$$MNUG = \frac{G}{MUGT} = \frac{Total\ Usable\ Gap\ Time\ during\ EP\ (Seconds)}{Minimum\ Usable\ Gap\ Time\ (Seconds)}$$

6. **A "Demand" -** The arrival of one or more school pedestrians at the school crossing. The arrival of a single child is considered one demand. The arrival of a group of children is also considered one demand.

WARRANT

1. Average Time Between Usable Gaps (M)

Determine Average Time between Usable Gaps (M) by dividing Evaluation Period (EP, minutes) by the Maximum Number of Usable Gaps (MNUG).

$$M = \frac{EP}{MNUG} = \frac{Evaluation\ Period\ (Minutes)}{Maximum\ Number\ of\ Usable\ Gaps}$$

POINT ASSIGNMENT	
Average Time Between Usable Gaps (minutes)	**Points**
Less than 1	0
1.00 - 1.25	2
1.26 - 1.67	4
1.68 - 2.50	6
2.51 - 5.00	8
Over 5	10

Maximum Points = 10

2. **School Pedestrian volume**

Determine total number of school pedestrians (age 5 to 18) crossing at the study location during the EVALUATION PERIOD.

POINT ASSIGNMENT		
Urban	**Rural**	**Points**
10 or less	10 or less	0
11 - 30	11 - 20	2
31 - 50	21 - 35	4
51 - 70	36 - 50	6
71 - 90	51 - 65	8
Over 90	Over 65	10

Maximum Points = 10

3. 85th percentile approach Speed

POINT ASSIGNMENT	
85^{th} Percentile Approach Speed	**Points**
20 and under	0
21 - 25	1
26 - 30	2
31 - 35	3
36 - 40	4
41 - 45	5
46 +	0

Maximum Points = 5

4. Average Demand Per Gap (D)

Determine average demand per gap (D) by dividing total demands (TD) by the maximum number of usable gaps (MNUG). The arrival of a single child is considered one demand. The arrival of a group of children is also considered one demand.

$$D = \frac{TD}{MNUG} = \frac{Total\ Demands}{Maximum\ Number\ of\ Usable\ Gaps}$$

POINT ASSIGNMENT	
Average Demand Per Gap	**Points**
1 or less	0
1.01 - 1.67	2
1.68 - 2.33	4
2.34 - 3.00	6
Over 3.00	8

Maximum Points = 8

After point values are determined for steps 1 through 4, the sum of steps 1 through 4 are compared to the following standard to determine if a reduced speed school zone is warranted:

1. Minimum 16 points in an urban area; or,
2. Minimum 12 points in an isolated, rural community with population under 10,000.

SURVEY METHODS

1. Personnel Requirements: One person
2. Equipment: Stop Watch and Field Data Form
3. Type of Survey:

a. Count school-age pedestrians within the Crosswalk area during the Evaluation Period (EP) to determine the School Pedestrian Volume. The Evaluation Period may be either in the morning or in the afternoon.

b. Obtain the 85th percentile approach speed. If the 85th percentile approach speed is unknown, the posted speed limit may be used.

c. Record (in seconds), on the field data form, each gap greater than or equal to the Minimum Usable Gap Time (MUGT) during the Evaluation Period.

d. Record, on the field data form, the Average Time between Usable Gaps (M), the school age pedestrian volume, the approach speed, and the Average Demand per Gap (D).

e. Evaluate the individual warrants, assign points, and tabulate points to determine if a reduced school speed zone is justified.

UTAH DEPARTMENT OF TRANSPORTATION

DIVISION OF TRAFFIC AND SAFETY

REDUCED SPEED SCHOOL ZONE WARRANT EVALUATION WORK SHEET

ROUTE:_____ MP:_____ INTERSECTION:_____ COMMUNITY:_____

DATE:_____ BEGIN TIME:_____ WEATHER:_____

DISTRICT:_____ END TIME:_____ INVESTIGATOR:_____

1. MINIMUM USABLE GAP TIME

$$\frac{\text{WIDTH OF STREET (W)}}{\text{3.0 FT / SEC}} + 5.0 = \frac{\quad}{3.0} + 5.0$$

2. MAXIMUM NO. OF USABLE GAPS (MNUG)

$$\frac{\textit{TOTAL}\text{ USABLE GAP TIME DURING EP (SEC)}}{\textit{MINIMUM}\text{ USABLE GAP TIME (SEC)}} = \_\_\_\_$$

3. AVERAGE DEMANDS PER GAP (D)

$$\frac{\textit{TOTAL}\text{ DEMANDS DURING EP (TD)}}{\text{MAXIMUM NO. USABLE GAPS (MNUG)}} = \_\_\_\_$$

4. AVERAGE TIME BETWEEN USABLE GAPS (M)

$$\frac{\text{EVALUATION PERIOD (MIN)}}{\text{MAXIMUM NO. OF USABLE GAPS (MNUG)}} = \_\_\_\_$$

WARRANT	ACTUAL VALUE	ASSIGNED POINTS	MAXIMUM POINTS
1. AVERAGE TIME BETWEEN GAPS (M)			10
2. SCHOOL PEDESTRIAN VOLUME (NUMBER)			10
3. 85TH PERCENTILE APPROACH SPEED (MPH)			5
4. AVERAGE DEMAND PER GAP (D)			8
	TOTAL		**33**

STANDARD (URBAN) = 16

STANDARD (Rural, isolated, population < 10,000) = 12

WARRANTED? (Yes/No)

SKETCH

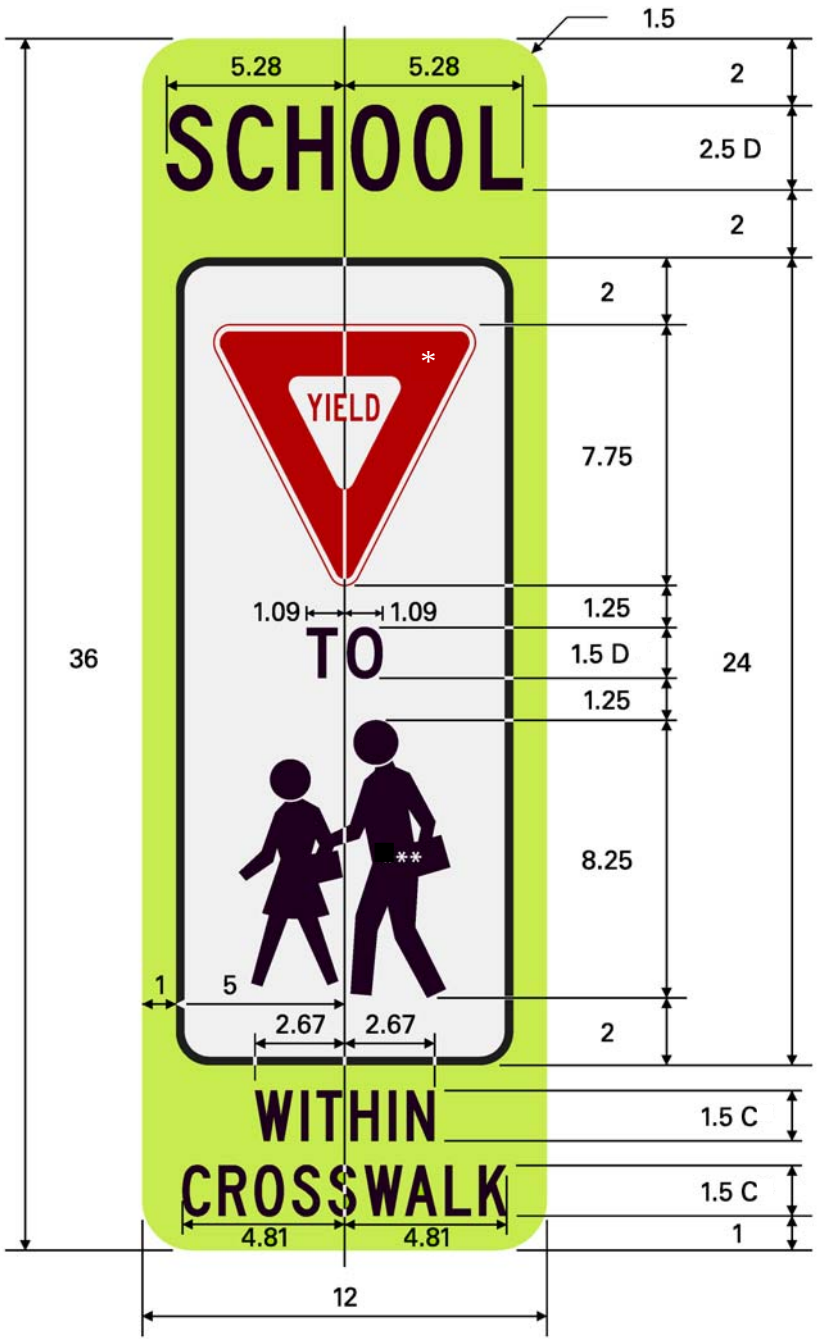
USABLE GAP TIMES FOR SCHOOL PEDESTRIAN VOLUME									
TIME	USABLE GAP TIME (Sec)	TIME	USABLE GAP TIME (Sec)	TIME	USABLE GAP TIME (Sec)	TIME	USABLE GAP TIME (Sec)	TIME	USABLE GAP TIME (Sec)
Subtotal		Subtotal		Subtotal		Subtotal		Subtotal	

Total Usable Gap Time during EP = _____ Seconds (summation of the subtotals)

SCHOOL PEDESTRIAN VOLUME AND DEMAND TALLY (Five Minute Intervals for 60 Minutes)									
	Interval 1	Interval 2	Interval 3	Interval 4	Interval 5	Interval 6	Interval 7	Interval 8	Interval 9
PEDS									
DEMANDS									
	Interval 10	Interval 11	Interval 12	**Remarks:**					
PEDS									
DEMANDS									

APPENDIX D

Utah Special School Zone Sign Layouts

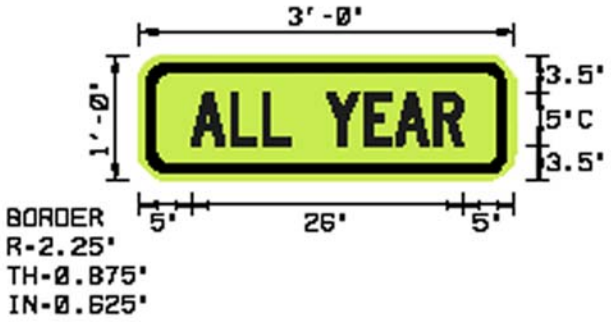


* Insert R1-2 and size to fit.
** See FHWA SHS 6-10 for design detail.

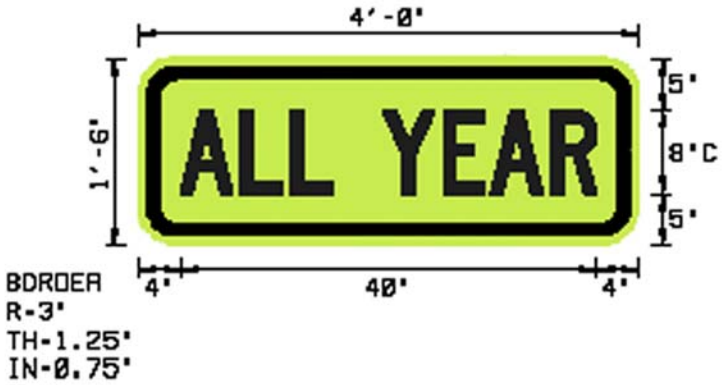
RS1-6
IN-SREET SCHOOL
CROSSING SIGN

COLORS:

LEGEND	**- BLACK**
BACKGROUND	**- FLUORESECENT YELLOW-GREEN (RETROREFLECTIVE)**
YIELD SYMBOL	**- RED (RETROREFLECTIVE) ON WHITE (RETROREFLECTIVE)**

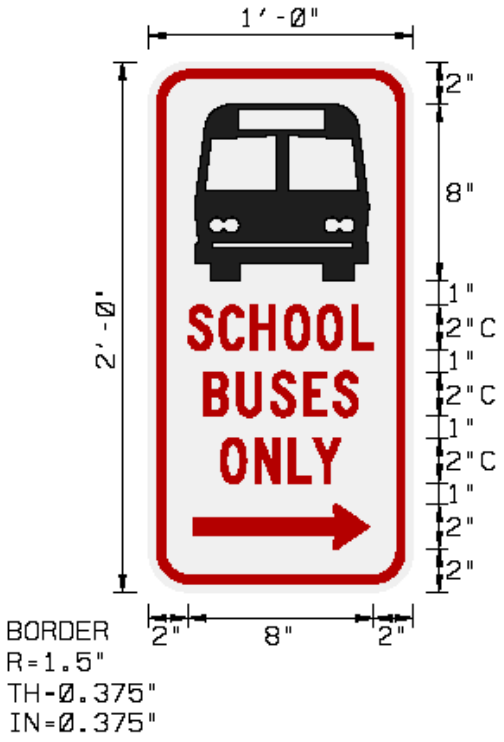


SS1-1p
ALL YEAR PLAQUE
Conventional Roads

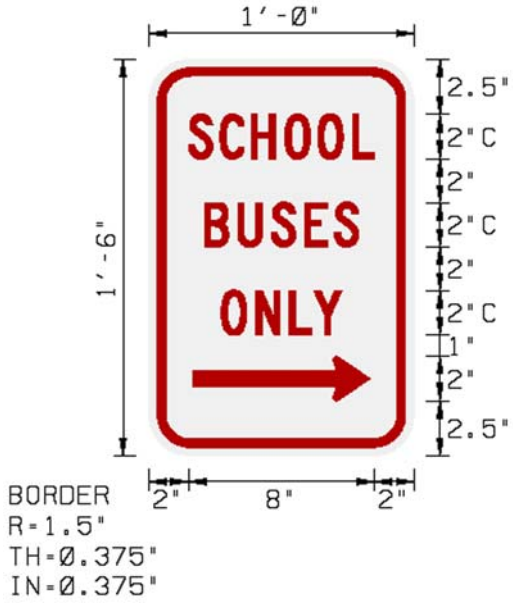


SS1-1p
ALL YEAR PLAQUE
Oversized

COLORS: **LEGEND** **- BLACK**
BACKGROUND **- FLUORESCENT YELLOW-GREEN (RETROREFLECTIVE)**



SS1-2
SCHOOL BUSES ONLY (symbol) SIGN



SS1-3
SCHOOL BUSES ONLY SIGN

COLORS: **LEGEND, ARROW - RED (RETROREFLECTIVE)**
SYMBOL - BLACK
BACKGROUND - WHITE (RETROREFLECTIVE)

APPENDIX E

School Zone Installation Checklist

School Zone Installation Checklist

Issue	Yes	No	NA
Is this School Zone included in an approved Child Access Routing Plan?			
SIGNING			
General Sign Items			
Signs meet standards for design, color and retroreflective			
Sign/Assembly is placed at the proper height: (to bottom of lowest sign or plaque) 1. Rural: 5-ft for a sign, 4-ft for an assembly from edge of pavement extended; 2. Urban, not over a Ped. route: 7-ft for a sign, 6-ft for an assembly from the ground; 3. Rural/Urban, over pedestrian route: 7-ft from the ground.			
Sign/Assembly is place at the proper lateral offset: (spacing to edge of sign) 1. Rural: minimum 6-ft from a paved shoulder or 12-ft from the traveled way; 2. Urban: minimum 2-ft from the face of curb, or 1-ft with limited width			
A. School Advance Warning Assembly			
Assembly includes the S1-1 sign with AHEAD (W16-9p) plaque.			
ALL YEAR (SS1-1p) plaque is between the S1-1 and W19-9p for a year-round school.			
Assembly is located at the proper spacing according to Appendix A.			
Assembly is placed at the proper height: 1. See General Sign Items; or, 2. The height of the bottom of the assembly is no less than the top of the Yield Here to Pedestrians sign			
Assembly is placed at the proper lateral offset: (see General Sign Items)			
B. School Speed Limit Assembly (Only used in Reduced Speed School Zones)			
Assembly includes only the S5-1 sign with Speed Limit Sign Beacons.			
Assembly is located at the proper spacing according to Appendix A.			
Assembly is placed at the proper height: (see General Sign Items)			
Assembly is placed at the proper lateral offset: (see General Sign Items)			
Speed Limit Sign displays 20 mph.			
Speed Limit Sign Beacons: 1. Flashes yellow left-right; and, 2. Has an on/off switch where an Adult Crossing Guard is required; or, 3. Has a timer where an Adult Crossing Guard is not required.			
C. School Crosswalk Warning Assembly			
Assembly includes only the S1-1 sign with Diagonal Arrow (W16-7) plaque			
Assembly is located at the crosswalk, or as close as possible.			
Assembly is placed at the proper height: (see General Sign Item)			
Assembly is placed at the proper lateral offset: (see General Sign Item)			
Is the approach controlled by a STOP sign? (If so, Assembly shall not be used)			
D. END SCHOOL ZONE Sign (Only used in Reduced Speed School Zones)			
Sign is located at the proper spacing according to Appendix A.			
Assembly is placed at the proper height: (see General Sign Items)			
Assembly is placed at the proper lateral offset: (see General Sign Items)			
E. Narrow School Route Assembly			
Assembly includes only the S1-1 sign with NEXT X MILE(S) (W7-3a) plaque			

Issue	Yes	No	NA
NEXT X MILE(S) plaque(s) display distance of: 1. Rural: ½-mile increments (2 mile maximum length); or, 2. Urban: ¼-mile increments (1 mile maximum length).			
ALL YEAR (SS1-1p) plaque is between the S1-1 and W19-9p for a year-round school.			
Assembly is located at the proper spacing according to Appendix A.			
Assembly is placed at the proper height: (see General Sign Items)			
Assembly is placed at the proper lateral offset: (see General Sign Items)			
F. Abutting School Zone			
Includes only the S1-1 sign.			
ALL YEAR (SS1-1p) plaque is below the S1-1 for a year-round school.			
Assembly is located at the proper spacing according to Appendix A.			
Assembly is placed at the proper height: (see General Sign Item)			
Assembly is placed at the proper lateral offset: (see General Sign Items)			
G. Parking and Stopping Signs (R7 and R8 Series)			
Parking signs are angled 30-45 degrees toward on-coming traffic measured from the curbline.			
Parking signs with the appended message THIS SIDE OF SIGN are placed facing on-coming traffic			
Signs are located at the proper spacing according to Appendix A.			
Signs are placed at the proper height: (see General Sign Items)			
Signs are placed at the proper lateral offset: (see General Sign Items)			
Appropriate restricted parking times are included on the signs.			
H. Reduced Speed School Zone Ahead Sign (Optional Use in Reduced Speed School Zones)			
Sign is located at the proper spacing according to Appendix A.			
Assembly is placed at the proper height: (see General Sign Items)			
Assembly is placed at the proper lateral offset: (see General Sign Items)			
I. Yield Here to Pedestrian Sign (Optional Use at unsignalized midblock school crosswalks)			
Sign is located 20 to 50 feet in advance of the school crosswalk.			
Assembly is placed at the proper height: (see General Sign Items)			
Assembly is placed at the proper lateral offset: (see General Sign Items)			
Has the lateral offset been evaluated to minimize blocking of the School Crosswalk Warning Assembly?			
Are required Yield lines in place if the sign is used?			
J. School Bus Loading Zone Signs			
Includes the SS1-2 or SS1-3 signs marking the beginning and ending of school bus loading zone.			
Signs are angled 30-45 degrees toward on-coming traffic measured from the curbline.			
Intermediate sign(s) at approximately 50-foot spacing.			
Assembly is placed at the proper height: (see General Sign Items)			
Assembly is placed at the proper lateral offset: (see General Sign Items)			
NOTES:			

Issue	Yes	No	NA
PAVEMENT MARKINGS			
K. SCHOOL Pavement Marking			
SCHOOL marking is placed in lane(s) adjacent to School Advanced Warning Assembly			
SCHOOL marking is placed in each approach lane for odd number of lanes (6-ft minimum height). Two-lane SCHOOL marking may be placed for even number of approach lanes (10-ft minimum height).			
SCHOOL marking is contained within the lane(s) and does not obscure any portion of center or lane line.			
L. School Crosswalk			
Longitudinal crosswalk markings are used (9-ft minimum length).			
Spacing on the Longitudinal markings are uniform and 24 to 36 inches apart.			
M. Stop and Yield Lines			
Stop Line used 4-feet in advance of a school crosswalk at intersections controlled by a traffic signal or STOP sign (width of 12 to 24-in).			
Yield Line used 4-feet in advance of a school crosswalk at intersections controlled by a YIELD sign.			
Yield Line consists of a row of isosceles triangles pointing toward approaching traffic. Minimum base width of triangles is 24 inches. Height of triangles is 1.5 times the base. Spacing of triangles is 6 to 12 inches.			
Yield Lines (Optional Use at unsignalized midblock school crosswalks) 1. Yield Lines placed 20 to 50-feet in advance of school crosswalk; and 2. Yield Here To Pedestrian Sign adjacent to Yield Lines			
N. Center, Lane and Edge Lines			
Centerline: 1. With no two-way left-turn lane (TWLTL), the center line is a solid double yellow line between any two travel lanes moving in opposing directions for the entire length between the School Advance Warning signs; or 2. With a TWLTL, striping is as per Part 3 of the MUTCD.			
Lane line(s) are solid white between any two travel lanes moving in the same direction approaching the crosswalk and proper length per Appendix A.			
If used, an 8-inch solid white edge line for the length of a Narrow School Route			
O. Curb Markings			
Curb within off-premise School Bus Loading Zone painted either red or yellow-green.			
Curb within on-premise School Bus Loading Zone painted yellow-green.			

NOTES:

APPENDIX F

Utah Department of Transportation
Contact Information
and Region Map

Utah Department of Transportation
Contact Information

UDOT Region 1
169 North Wall Avenue
PO Box 12580
Ogden, UT 84412-2580
(801) 620-1600

UDOT Region 2
2010 South 2760 West
Salt Lake City, UT 84104-4592
(801) 975-4900

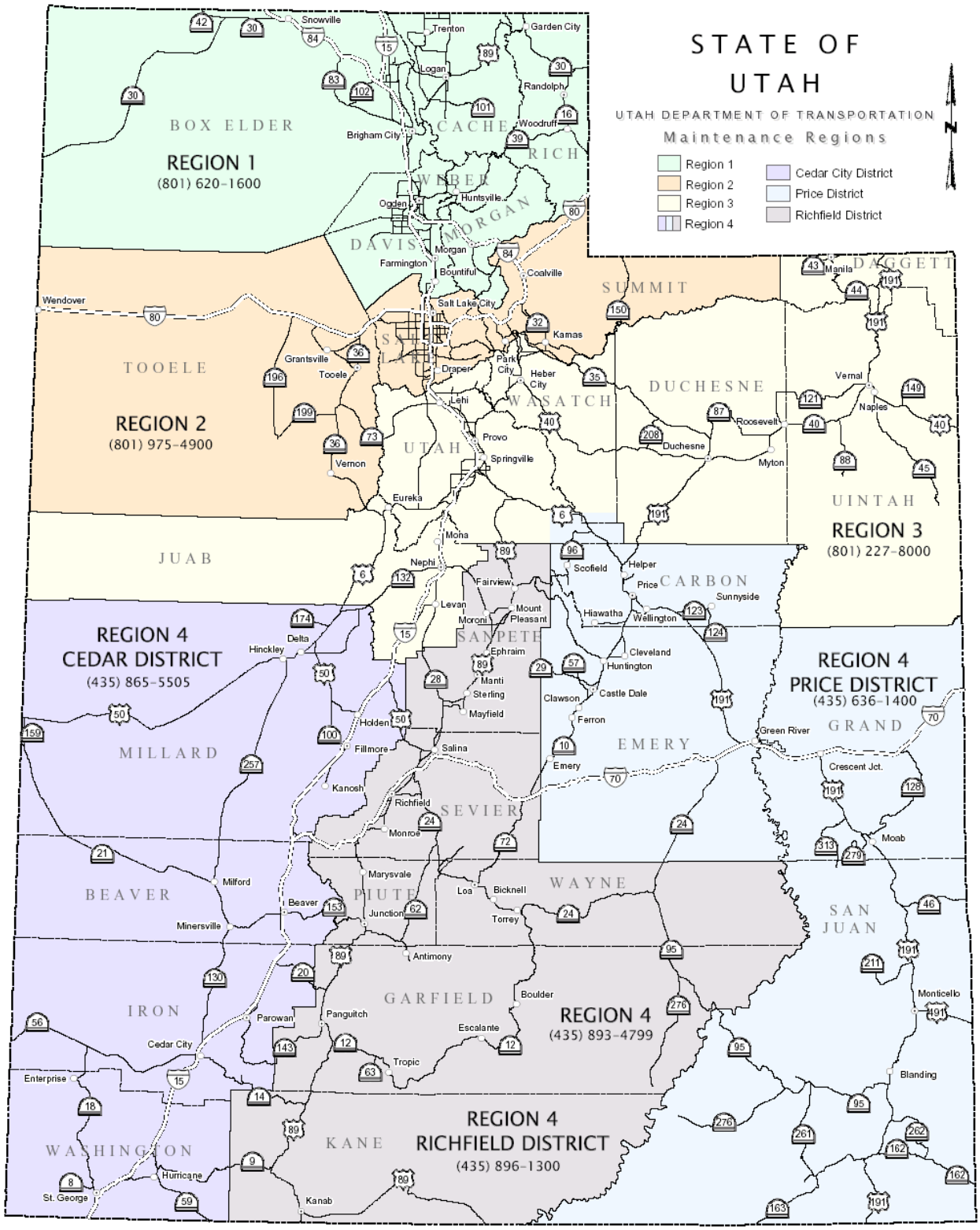
UDOT Region 3
658 North 1500 West
Orem, UT 84057
(801) 227-8000

UDOT Region 4
1345 South 350 West
Richfield, UT 84701
(435) 893-4799

Engineer for Traffic and Safety
Utah Department of Transportation
Traffic and Safety Division
4501 South 2700 West
Box 143200
Salt Lake City, UT 84114-3200
(801) 965-4273

Chief RR and Utilities Engineer
Utah Department of Transportation
Project Development Division
4501 South 2700 West
Box 148445
Salt Lake City, UT 84114-8445
(801) 965-4176

Note:
UDOT Region Map on next page


STATE OF UTAH
UTAH DEPARTMENT OF TRANSPORTATION
Maintenance Regions
Region 1
Region 2
Region 3
Region 4
Cedar City District
Price District
Richfield District
N
REGION 1
(801) 620-1600
REGION 2
(801) 975-4900
REGION 3
(801) 227-8000
REGION 4
CEDAR DISTRICT
(435) 865-5505
REGION 4
PRICE DISTRICT
(435) 636-1400
REGION 4
(435) 893-4799
REGION 4
RICHFIELD DISTRICT
(435) 896-1300
BOX ELDER
CACHE
RICH
WEBER
DAVIS
MORGAN
SUMMIT
DAGGETT
TOOELE
SALT LAKE
WASATCH
DUCHESNE
UINTAH
JUAB
UTAH
SANPETE
CARBON
EMERY
GRAND
MILLARD
SEVIER
BEAVER
PIUTE
WAYNE
SAN JUAN
IRON
GARFIELD
WASHINGTON
KANE
Snowville
Trenton
Garden City
Logan
Randolph
Brigham City
Woodruff
Ogden
Huntsville
Morgan
Farmington
Bountiful
Coalville
Manila
Wendover
Salt Lake City
Kamas
Grantsville
Tooele
Draper
Park City
Heber City
Vernal
Lehi
Naples
Roosevelt
Provo
Duchesne
Springville
Myton
Vernon
Eureka
Mona
Nephi
Scofield
Helper
Price
Sunnyside
Fairview
Levan
Mount Pleasant
Moroni
Hiawatha
Wellington
Ephraim
Cleveland
Huntington
Manti
Sterling
Clawson
Castle Dale
Mayfield
Ferron
Green River
Delta
Hinckley
Holden
Fillmore
Salina
Emery
Crescent Jct.
Kanosh
Richfield
Monroe
Moab
Milford
Marysvale
Loa
Bicknell
Beaver
Junction
Torrey
Minersville
Antimony
Boulder
Parowan
Panguitch
Escalante
Cedar City
Tropic
Enterprise
Blanding
Monticello
Hurricane
St. George
Kanab